

**Autodesk®**  
Control Surface 2009 Extension 1

# User Guide

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Published by: Autodesk, Inc.  
111 McInnis Parkway  
San Rafael, CA 94903, USA

Title: Autodesk Control Surface 2009 Extension 1 User Guide

Document Version: 1

Date: April 07, 2009

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# The Autodesk Control Surface

# 1

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## About the Autodesk Control Surface

The Autodesk® control surface provides improved interactivity when colour grading film and video footage. You can perform many of the same tasks you do in the Autodesk ACS® user interface using the control surface. The modular design of the control surface also allows you to work on different grading stages simultaneously. For example, you can perform curves grading while modifying the image lift.

The Autodesk control surface consists of three panels. Although licensed separately, they are designed to work together.

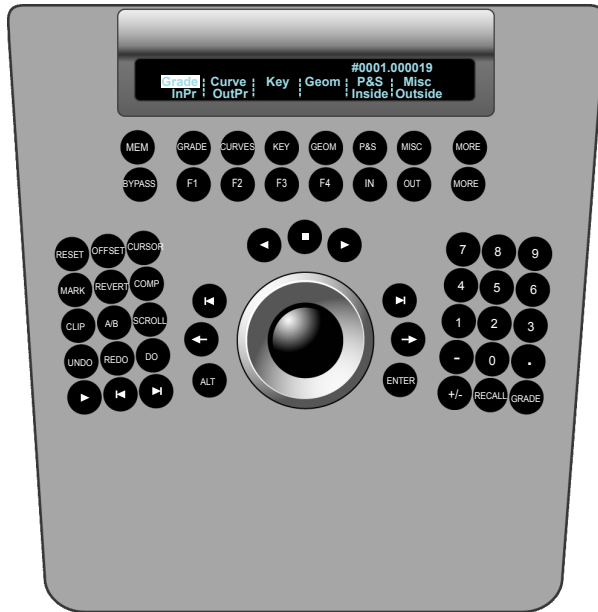
For information on connecting the control surface, refer to the *Autodesk Lustre Software Installation Guide* for your platform.

For technical information about the Autodesk control surface, see [http://www.tangentdevices.co.uk/downloads\\_documents.asp](http://www.tangentdevices.co.uk/downloads_documents.asp).

## Control Surface Panel Descriptions

Each of the three control surface panels are designed to perform different functions.

The following image shows the Navigation panel.

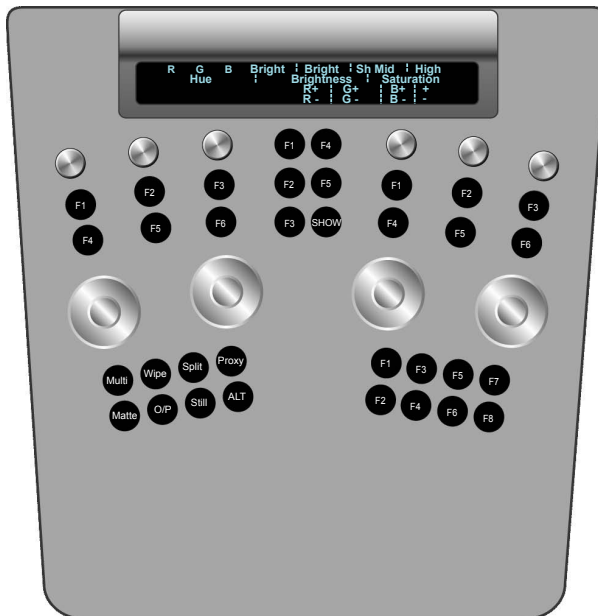


Use the Navigation panel to:

- Select menus. Pressing one of the menu buttons along the top of the panel activates a menu. For example, pressing the Grade button activates grading functionality.
- Reset or bypass the currently selected menu.
- Cache memory.
- Navigate the Storyboard.
- Pan and zoom the image.
- Copy grades.
- Activate mouse functionality.
- Add keyframes.
- Revert and compare grades.
- Toggle playback mode between Storyboard and clip loop.
- Switch playheads.
- Scroll shots.

- Undo and redo actions.
- Perform actions with the Grade bin.
- Adjust printer lights.
- Jump to specified frame number or timecode on the Storyboard.
- Show or hide user interface elements.
- Adjust the appearance of the panels.

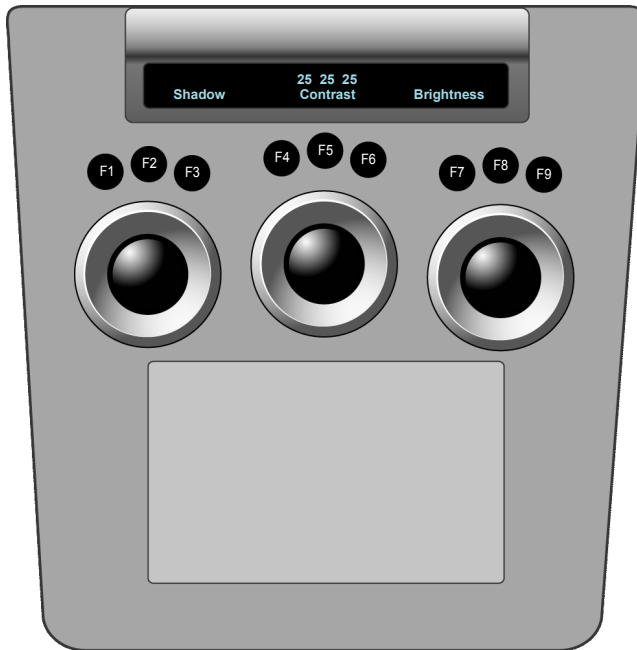
The following image shows the Function panel.



Use the Function panel to work in the menu you activated in the Navigation panel. For example, if you pressed the Key menu button in the Navigation panel, the functions for pulling a key are activated in the Function panel. The features available on the Function panel depend entirely on the menu selected in the Navigation panel. You can use the digital display at the top of the panel as a guide for understanding how functionality is distributed when a given menu is active.

You can also use the Function panel to set viewing modes. Some of the viewing functions included in the Function panel include multi-view, wipe, split, proxy, output, and print view.

The following image shows the Colour Grading panel.



Use the Colour Grading panel for most grading functions. Colour grading functionality is split between the Colour Grading and the Function panels. The Colour Grading panel is always in grading mode. Depending on the colour space selected in the Setup Project menu, either Linear or Logarithmic functionality is available.

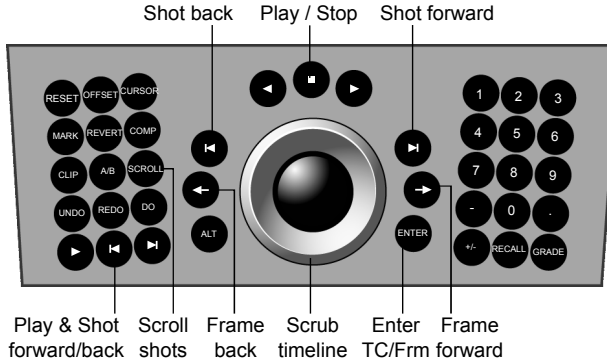
The Colour Grading panel also contains the tablet.

## Navigating the Storyboard

You can use the Navigation panel to:

- Scrub the Storyboard.
- Scroll through the shots in the Storyboard.
- Toggle between the regular and large Storyboard viewing modes.
- Jump to a specified frame or timecode on the Storyboard.
- Jump ahead or back a frame at a time, or a shot at a time.

- Play forwards or backwards.



**To scrub the Storyboard:**

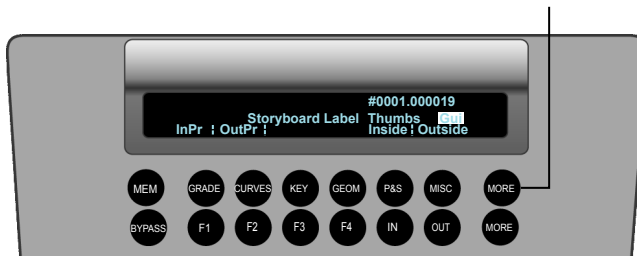
- Use the ring portion of the trackball.

**To scroll through shots on the Storyboard:**

- 1 Press the Scroll button.
- 2 Use the ring portion of the trackball.
- 3 Press the Scroll or Do button to confirm the move.

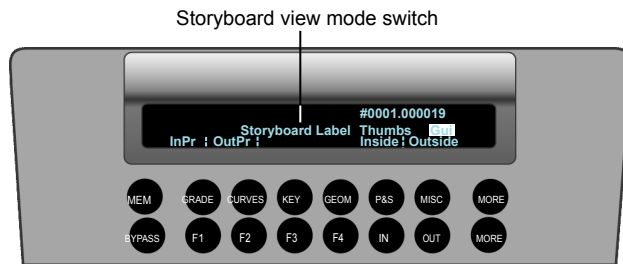
**To switch between regular and large Storyboard viewing modes:**

- 1 Press the top More button on the Navigation panel.



The Label, Tnails, and GUI options appear in the digital display at the top of the panel. The location of each option in the digital display reflects their button position on the panel.

- 2 If the Storyboard option does not appear, press the button for Thumbs (the P&S button) to display Storyboard thumbnails. This makes the Storyboard option appear in the digital display.



- 3 Press the button for Storyboard (the Key button). This switches Storyboard thumbnails to the large Storyboard option.

---

**NOTE** This is equivalent to using the **Q** hotkey.

---

#### To jump to a specified frame on the Storyboard:

- 1 Press the Enter button.
- 2 Do one of the following:
  - To jump ahead, enter the frame number using the numeric pad on the right side of the panel.
  - To jump back, press the +/- button on the numeric pad and then enter the frame number.
- 3 Press the Enter button to jump to the specified frame.

#### To jump to a specified timecode on the Storyboard:

- 1 Press the Enter button.
- 2 Enter a timecode using the numeric pad on the right side of the panel.
- 3 Press the Enter button to jump to the specified timecode.

#### To jump back or ahead a frame at a time:

- 1 To jump back a frame, do one of the following:
  - Press the Frame Back button (left arrow button to the left of the trackball).

- Simultaneously press the Shot Back button (below the Redo button) and the Play button (below the Do button).
- 2 To jump ahead a frame, do one of the following:
    - Press the Frame Forward button (right arrow button to the right of the trackball).
    - Simultaneously press the Shot Forward button (below the Undo button) and the Play button (below the Do button).

**To jump to the beginning or end of a shot:**

- 1 To jump to the first frame of the shot, press either of the two Shot Back buttons. One button is located to the left of the trackball, and the other is below the Redo button.
- 2 To jump to the last frame of the shot, press either of the two Shot Forward buttons. One button is located to the right of the trackball, and the other is below the Do button.

**To play forwards or backwards:**

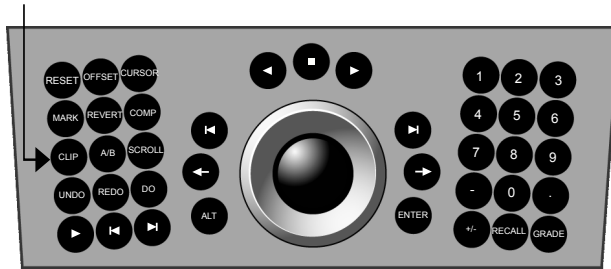
- 1 To play the Storyboard forward, do one of the following:
  - Press the Play Forward button (above the trackball).
  - Press the Spacebar-style Play button (below the Undo button). This button operates like the Spacebar on the keyboard, in that you use it both to start and stop playback.
- 2 To play the Storyboard backwards, press the Play Backwards button (above the trackball).
- 3 To stop playback, do one of the following:
  - Press the Stop button (above the trackball).
  - Press the Spacebar-style Play button.

## Toggle Play Modes

You can toggle the playback mode between looping a shot or looping the entire Storyboard.

To toggle play modes:

- Press the Clip button on the Navigation panel.



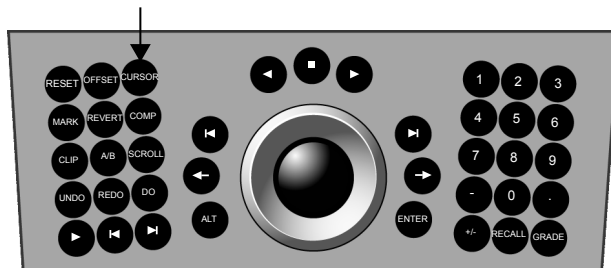
This button corresponds to the Play Mode button in the user interface.

## Activating Mouse Functionality

You can enable mouse functionality on the Navigation panel.

To activate mouse functionality:

- 1 Press the Cursor button on the Navigation panel.

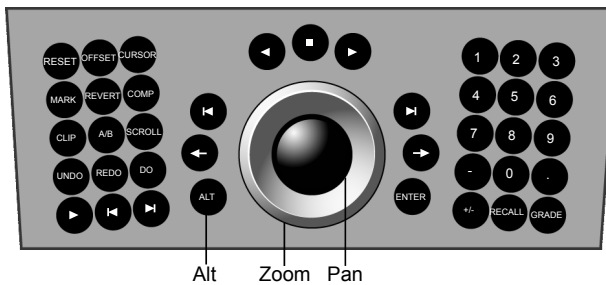


- 2 Use the panel's features as follows.

Use the:	As the:
Trackball	Mouse.
Backward play button	Left mouse button.
Stop button	Middle mouse button.
Forward play button	Right mouse button.

# Panning and Zooming the Image

You can use the Navigation panel to pan and zoom the image.



**To zoom the image:**

- Hold down the ALT button on the Navigation panel and use the ring on the trackball to zoom in and out.

**To pan the image:**

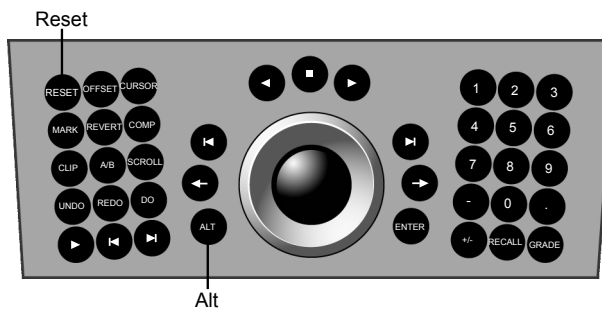
- Hold down the ALT button on the Navigation panel and use the jog ball on the trackball to pan the image.

# Resetting Zoom and Pan

You can now reset the zoom and pan.

**To reset the zoom and pan:**

- Hold down the ALT button on the Navigation panel and press the Reset button.



---

**NOTE** The zoom and pan are always reset together.

---

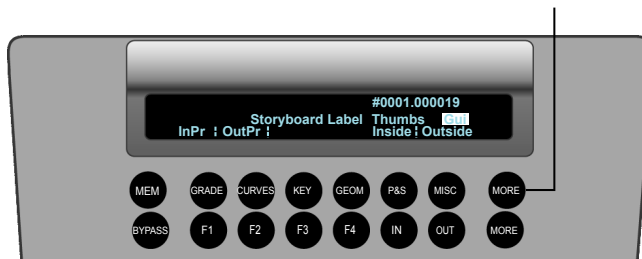
## Customizing the View

There are options for customizing the view on both the Navigation panel and the Function panel.

When working with secondaries, users can use the Function panel to view them in Saturated Mask view or Matte view. Saturated Mask view displays the range of colours you define through a greyscale image. The unselected colours remain grey. Matte view displays a black and white template indicating which parts of the image are transparent (black), and which are opaque and selected (white).

**To access view options available on the Navigation panel:**

- 1 Press the top MORE button on the Navigation panel.



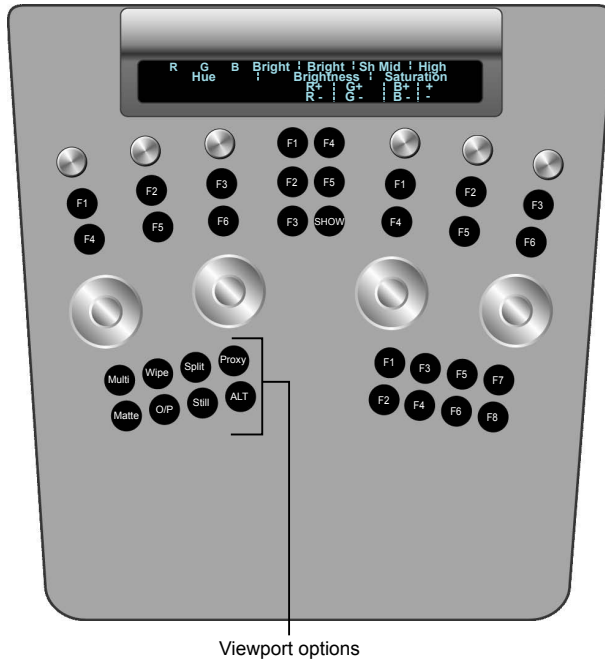
The Panel, Storyboard, Label, Thumbs, and GUI options appear in the digital display at the top of the panel. The location of each option in the digital display reflects their button position on the panel.

- 2 Select one of the following options.

<b>Press:</b>	<b>To toggle the:</b>
CURVES	Panel sensitivity.
KEY	Storyboard on or off.
GEOM	Shot name on or off the image.
P&S	Storyboard thumbnails on or off.
MISC	Full-screen Player on or off.

**To access view options available on the Function panel:**

- Use the viewport options to change the view as you work on your grades. For example, press PROXY to view a proxy version of your shot in the Player.



Viewport option	Description
MULTI	Toggles multi-shot display on and off in the Player. You can view up to 16 shots. In order for Multi to function, you must enable split-view first by pressing the Split button on the panel, or <b>F5</b> on the keyboard.
WIPE	Toggles between horizontal and vertical split view in the Player. In order for Wipe to function, you must enable split-view first by pressing the Split button on the panel, or <b>F5</b> on the keyboard.
SPLIT	Enables split-view in the Player, and the Multi and Wipe buttons.
PROXY	Toggles between the full-resolution and half-resolution (proxy) version of your shot in the Player. If you have not rendered a proxy, an X appears in the Player.

Viewport option	Description
MATTE	Toggles between secondary grading view and result view.
O/P	Toggles between a rendered version of your shot (P) and the pre-rendered version with grading applied (O). If you have not rendered the shot, an X appears in the Player when in P mode. Press the ALT and O/P buttons simultaneously to toggle to I mode (this displays the image with colour corrections made in the Grading and Curves menus only).
STILL	Displays the stored reference image. Press the ALT and Still buttons simultaneously to store the current frame in the reference buffer.

---

**NOTE** You can also access the SHOW button in the Function panel. This button shows or hides the geometry wireframe for the current secondary layer.

---

**NOTE** There is no functionality assigned to the Function panel's ALT button for this release.

---

#### To change fonts in the digital display:

- On the keyboard, press **Shift+F** until you obtain the desired font.

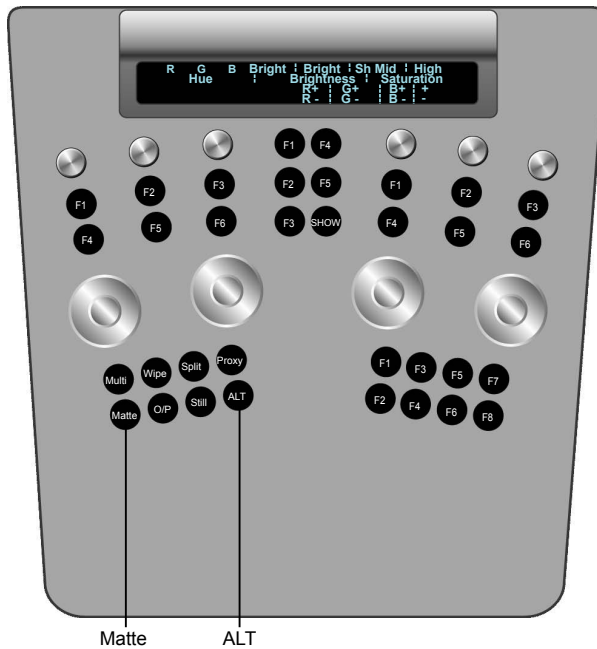
---

**NOTE** The change is only maintained for the current session.

---

#### To toggle between “O” view and Matte view:

- 1 Press the MATTE button on the Function panel.



- 2 Hold down the ALT button on the Function panel while pressing MATTE again to switch between Saturated Mask view and black and white Matte view.

---

**TIP** You can go directly to Saturated Mask view mode from another mode, e.g. Output, by holding down the ALT button and pressing Matte.

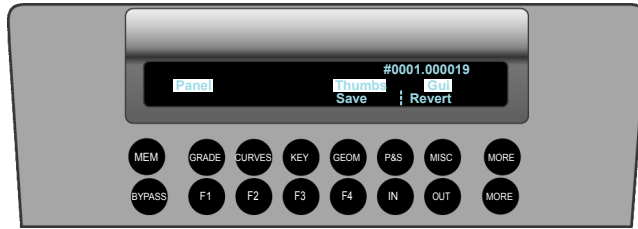
---

## Customizing the Panel Sensitivity

When you enable the Edit function, you can modify the sensitivity of any modifier (e.g., knobs, wheels, and rings). These items include the Grading, Curves, Key, Geom, P&S, and Misc menu.

**To edit the sensitivity of the Autodesk Control Surface panels:**

- 1 On the Navigation panel, press the top MORE button.
- 2 Press the CURVES button to enter the Panel menu.



In the Panel menu you can Edit (F4 button), Save (IN button), and Revert (OUT button) your panel sensitivity changes.

- 3 Press the F4 button to enable the Edit mode.
- 4 Touch any modifier you want to change its sensitivity on the panel. Turn the modifier clockwise to increase the sensitivity or counter-clockwise to decrease the sensitivity.

---

**NOTE** The Function panel displays the Grade menu by default. To change the sensitivity of the Curves, Geometry, Keyer, or Reposition menu, you must enable the menu you want to modify first before entering the panel sensitivity option.

---

When a control is selected, its name and sensitivity are displayed on all the LCD panels. The last line of the LCD displays the control you are modifying, its value, and the enabled Edit mode.

---

**NOTE** Some control names are long and therefore are truncated on the Navigation panel LCD. The Function and Grading panels display the full name and value.

---

- 5 Press the F4 button again to disable the Edit mode. You can now test out the new sensitivity value.

---

**NOTE** Pressing F4 does not exit you from the Panel menu.

---

---

**NOTE** You need to save the rules file in order to commit your modification. If you do not save the modification, you will lose the modified value(s) when you quit ACS.

---

## Saving the Sensitivity Modifications

When you have completed making modifications to the sensitivity of your Autodesk Control Surface panel and tested the sensitivity, you must save your changes.

**To save the modifications to your Autodesk Control Surface panel:**

- 1 Press the IN button. The Save option is selected and the LCD displays “Confirm Save”.

---

**NOTE** If you do not want to confirm the save, press the F1 button to exit the Save menu. The display returns to the Panel menu.

---

- 2 Press the IN button again. The LCD displays “Saving Panel File”. The changes are saved and the display returns to the top level menu.

## Reverting the Panel Modifications

If you have made modifications to the panel control values and have not saved the changes, you can revert back to the previous saved values.

**To revert the saved panel modifications:**

- 1 Press the OUT button to select the Revert option. The LCD displays “Confirm Revert”.

---

**NOTE** If you do not want to confirm the revert, press the F1 button to cancel the revert. The display returns to the Panel menu.

---

- 2 Press the OUT button again to confirm the revert. The LCD displays “Reverting Panel File” and then returns to the top level menu.

## Selective Backlighting of Active and Available Buttons

In order to make it easier to determine which functions are currently available on the Autodesk Control Surface panels, you can select Mid from amongst the options accessible from the Navigation panel.

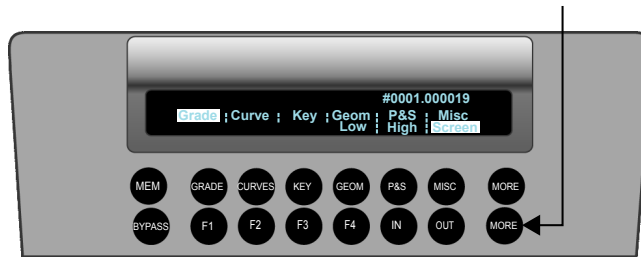
The Mid option highlights active buttons and available buttons.

An active button is one that has been enabled by the user. For example, if you enable secondary two for Inside grading, the 2 button on the numeric keypad and the Inside button are backlit on the Navigation panel.

An available button is one that has been enabled by the system based on a feature that you selected. For example, if you switch from the Geom menu to the Reposition menu, the backlighting on the Function panel changes to show which buttons are available for performing repositioning tasks.

**To enable backlighting for active and available buttons:**

- 1 Press the bottom More button on the Navigation panel.  
The Low, Mid, High, and Screen options appear in the digital display.



- 2 Press the F4 button.  
Active and available buttons are now backlit.

---

**NOTE** The Low option is now accessible by pressing the F3 button.

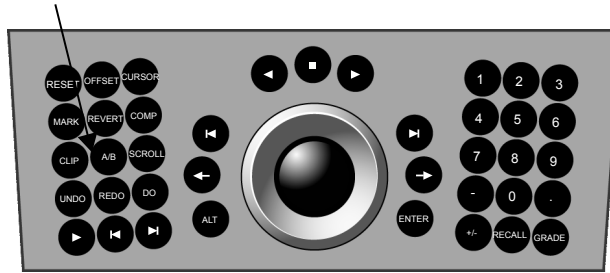
---

## Toggling Playheads

You can toggle between the images assigned to Playhead A and B.

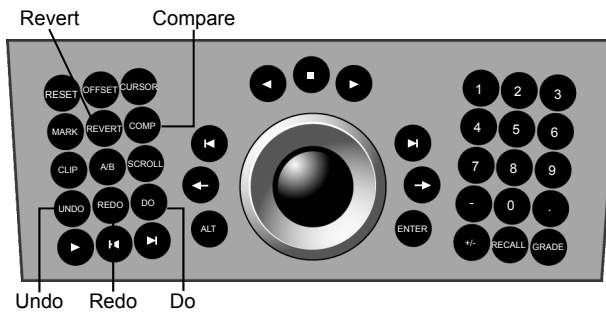
**To toggle playheads:**

- Press the A/B button on the Navigation panel.



## Using the Undo List

You can access the undo list from the Navigation panel. The undo list works differently than it does in the user interface. When you use the panel, you must save your changes to the undo list using the Do button. Undo lists are saved on a shot-by-shot basis.



**To save a change to the undo list:**

- Press the Do button.

**To go through the undo list:**

- Press the Undo or Redo button.

## Reverting to Previous Grades

You can use the Navigation panel to toggle between the grade that was applied to a shot when you first selected it in the Storyboard and the current grade.

**To revert to previous grades:**

- Press the Revert button on the Navigation panel.

**To save the reverted stage to the undo list:**

- Press the Do button on the Navigation panel.

## Comparing Grades

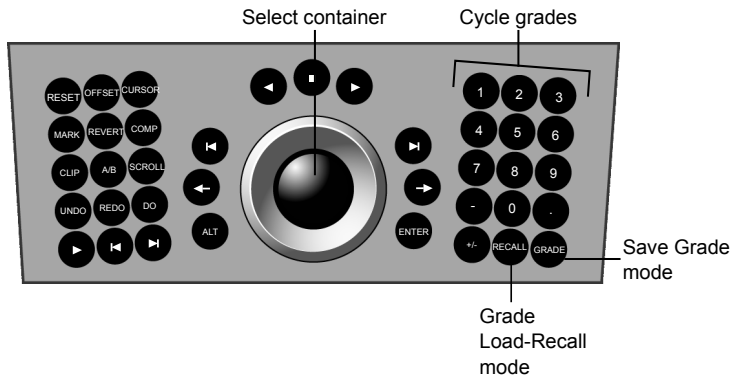
You can compare the current image with the grade you last committed to the undo list.

**To toggle between the current image and the grade you last committed to the undo list:**

- Press the Comp button on the Navigation panel.

## Working with the Grade Bin

You can use the Navigation panel to access Grade bin functionality.



## Saving a Grade to the Grade Bin

Use Grade Save mode to save one or more grades to the Grade bin.

### To save a grade to the Grade bin:

- 1 On the Storyboard, use the ring to navigate to the shot with the grade you want to save.

---

**TIP** This step can also be performed after you enter Grade Save mode.

---

- 2 Press the Grade button on the Navigation panel.  
This activates Grade Save mode.
- 3 To select a storage container in the Grade bin, do one of the following:
  - Use the jog ball on the trackball.
  - Press the keypad number button that corresponds to the desired Grade bin container position.
- 4 To save the shot's grade to the storage container, double-press the keypad number button that corresponds to the desired Grade bin container.  
After the grade is saved, you are still in Grade Save mode and can save other grades. Use the trackball ring to navigate to other shots.
- 5 To exit Grade Save mode, press Grade.

## Loading a Grade From the Grade Bin

Use Grade Load-Recall mode to load grades from the Grade bin to one or more shots on the Storyboard.

### To load a grade from the Grade bin:

- 1 On the Storyboard, navigate to the shot to which you want to load one or more grades.

---

**TIP** This step can also be performed after you enter Grade Load-Recall mode.

---

- 2 Press the Recall button on the Navigation panel.  
This activates Grade Load-Recall mode.
- 3 To select a grade in the Grade bin, do one of the following:
  - Use the jog ball on the trackball to navigate the Grade bin.
  - Press the keypad number button corresponding to the desired Grade bin container position once to jump to it.

- 4 To load the grade to the current selected shot on the Storyboard, double-press the appropriate number button twice.  
After the grade is loaded to the shot, you are still in Grade Load-Recall mode and can load other grades from the Grade bin to the shot. Use the trackball ring to navigate to other shots.
- 5 To exit Grade Load-Recall mode, press Recall.

## Saving the Current Grade

You can use the Navigation panel to save the current grade file and cut.

---

**NOTE** If a grade file has not been created, a default grade file is saved.

---

**To save the current grade file and cut:**

- Press ALT and DO on the Navigation panel.

## Adjusting Printer Lights

You can adjust printer lights on the Navigation panel. Printer light values are displayed in the Colour Grading panel's digital display.

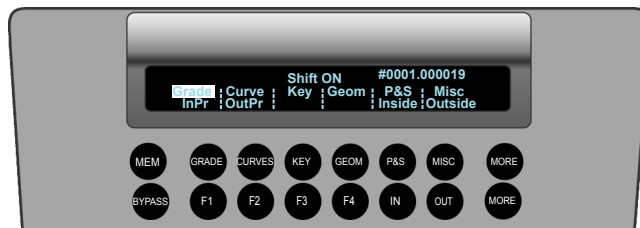
---

**NOTE** You can also adjust printer lights on the Function panel when the Grade menu is enabled. See [Grading in Logarithmic Mode Using the Function Panel](#) on page 34.

---

**To adjust printer lights:**

- 1 On the Navigation panel, double-press the ALT button.  
The words “Shift ON” appear in the digital display.



- 2 Use the following buttons on the keypad to make printer light adjustments to the image.

<b>Press:</b>	<b>To:</b>
7	Increase red brightness by one step.
4	Decrease red brightness by one step.
8	Increase green brightness by one step.
5	Decrease green brightness by one step.
9	Increase blue brightness by one step.
6	Decrease blue brightness by one step.
1	Increase cyan brightness by one step.
- (minus sign)	Decrease cyan brightness by one step.
2	Increase magenta brightness by one step.
0	Decrease magenta brightness by one step.
3	Increase yellow brightness by one step.
. (period)	Decrease yellow brightness by one step.

## Copying Grades

You can temporarily or permanently copy a grade to the current shot from another shot in the Storyboard.

### To copy a grade to the current shot from another shot in the Storyboard:

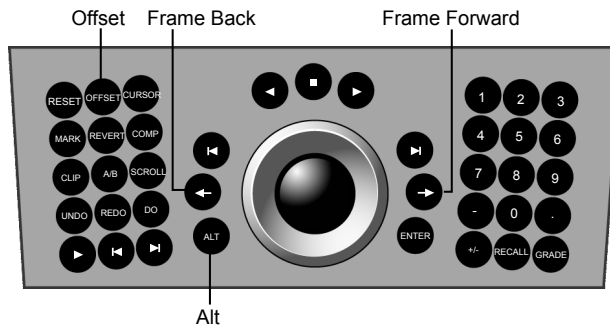
- 1 Scroll to the shot you would like to copy grades to by performing one of the following two actions:
  - Hold down the ALT button on the Navigation panel and then press the Frame Forward or Frame Back button to temporarily apply the grade from the previous or next shot to the current shot.

---

**NOTE** Each time you press ALT and Frame Forward or Frame Back, you move one shot at a time through possible sources to copy back to the current Storyboard position. For example, if you hold down ALT and press Frame Forward three times, you see a preview of the current Storyboard position with the grade from three shots ahead applied.

---

- Press Offset on the Navigation panel and then scroll through the shots by pressing the Scroll button and using the ring portion of the trackball.



- 2 Press Do to permanently copy the grade from the shot outlined in blue to the current shot.
- 3 Press the ALT button to cancel the operation.

## Adding Keyframes

When you animate parameters, you can set keyframes using the Mark button.

**To add keyframes:**

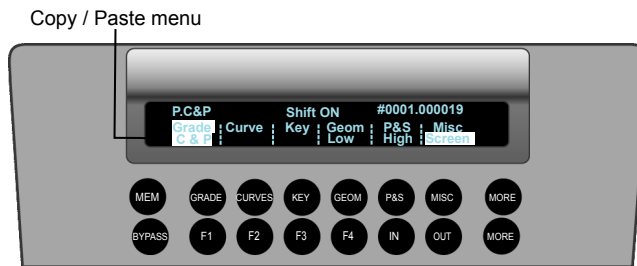
- 1 Go to the frame where you want to add the keyframe.
- 2 Press Mark.
- 3 Modify the parameters.
- 4 Repeat the above steps as required.

# Copying and Pasting Keyframes

You can copy and paste keyframes using the Navigation and Function panels of the Autodesk Control Surface panel.

To copy and paste keyframes:

- 1 On the Navigation panel, press the bottom MORE button.
- 2 Press the F1 button to enable the P. C & P menu.  
The Permanent Copy/Paste (P. C & P) menu is displayed.

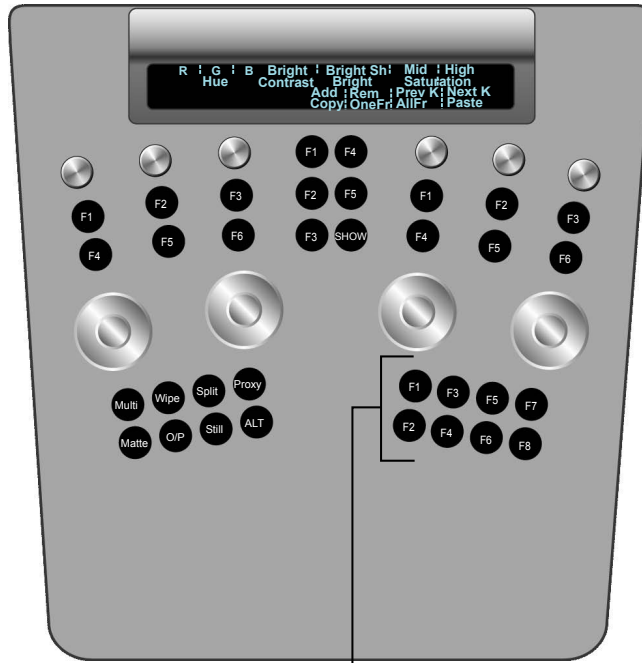


- 3 On the Function panel, press the appropriate button (F1-F8) to perform your choice of copy and paste operation.

---

**NOTE** When you press one of these buttons, the corresponding button is automatically pressed in the Channel hierarchy and the corresponding menu command is highlighted in the Function panel display. For example, when you press F1 to add a keyframe, the Add button is pressed and the Add command is highlighted.

---

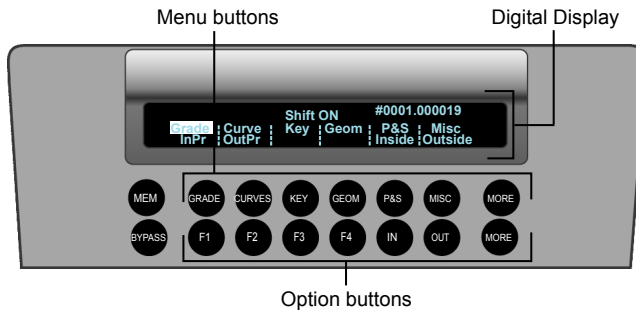


Copy / Paste Keyframe functions

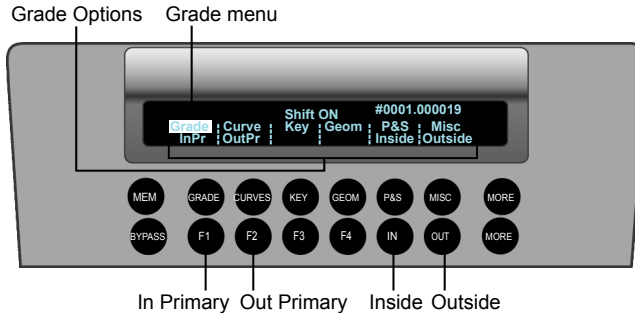
Copy/Paste Keyframe option	Function
F1	Add keyframe
F2	Copy
F3	Remove keyframe
F4	One frame
F5	Next keyframe
F6	All frames
F7	Previous keyframe
F8	Paste

# Selecting Menus

Selecting a menu from the first row of buttons on the Navigation panel determines which options are available in the second row of buttons. What you select in the Navigation panel also determines the features available on the Function panel.



You can see which options are available by checking the digital display. For example, in the following illustration the Grade menu has been selected and the InPr, OutPr, Inside, and Outside options appear in the digital display. The location of these options in the digital display is the same as their location amongst the option buttons.



## To select a menu:

- Choose one of the following.

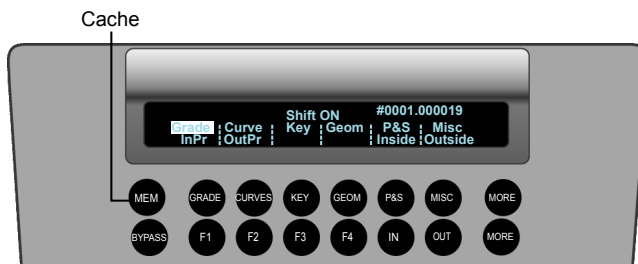
Press:	To:
Grade	Enable the In Primary, Out Primary, Inside, and Outside options, and activate Logarithmic or Linear grading in the Function panel. See <a href="#">Performing Colour Grading</a> on page 31.

Press:	To:
Curves	Enable the In Primary, Out Primary, Hue, and RGB options, and activate curves grading in the Function panel. See <a href="#">Performing Curves Grading</a> on page 41.
Key	Enable the Key menu, and activate keying functionality in the Function panel. See <a href="#">Extracting Keys using the HLS Keyer</a> on page 44 and <a href="#">Extracting Keys using the Diamond Keyer</a> on page 51.
Geom	Enable the Rectangle, Circle, Wipe (split screen), Bezier (free-form geometry), Inside, and Outside options, and activate geometry grading in the Function panel. See <a href="#">Creating and Grading Geometries</a> on page 57.
P&S	Activate repositioning functionality in the Function panel. When this function is selected, no additional options are activated in the Navigation panel. See <a href="#">Repositioning Shots</a> on page 29.
More (upper)	Access the following additional options: Label, Thumbnails, and GUI. These options pertain to elements in the user interface. See <a href="#">Customizing the View</a> on page 11.
More (lower)	Access the following additional options: Low, High, and Screen. These options pertain to the control surface appearance. See <a href="#">Modifying the Appearance of the Autodesk Control Surface</a> on page 62.

**NOTE** There is no functionality assigned to the Misc button for this release.

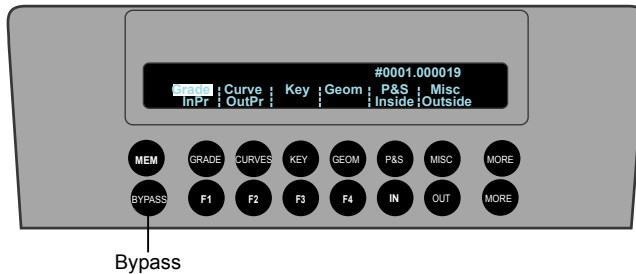
## Caching Memory

When a shot does not play back in real time, you can cache the frames into memory using the Mem button.



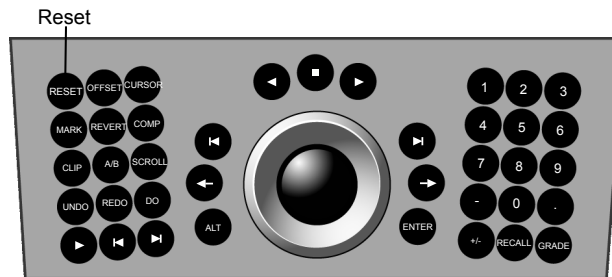
# Bypassing Functions

Use the Bypass button on the Navigation panel to bypass the currently selected menu.



# Resetting Functions

Use the Reset button on the Navigation panel to reset parameters for the current menu only, or to reset all parameters on the currently selected shot.



**To reset parameters for the current menu only:**

- Press the Reset button once.

**To reset all parameters on the shot:**

- Double-press the Reset button.

---

**TIP** You can reset individual parameters by pressing its assigned Reset button. These buttons are indicated throughout this chapter.

---

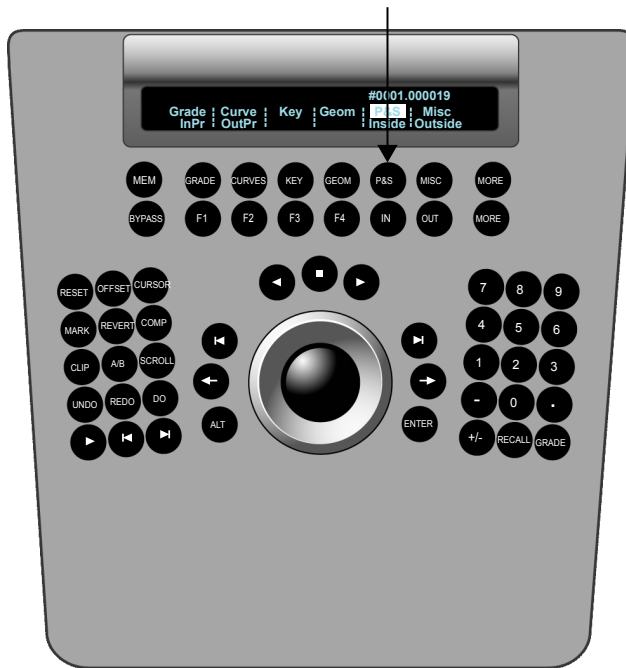
# Repositioning Shots

You can reposition a shot by:

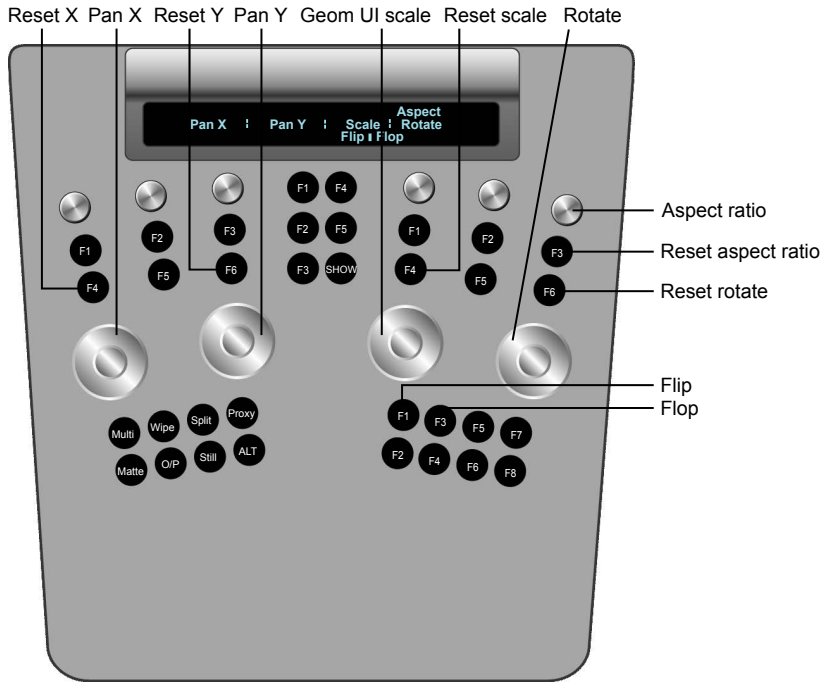
- Scaling
- Panning vertically and horizontally
- Rotating
- Changing the aspect ratio
- Flipping and flopping

**To reposition a shot:**

- 1 Press the P&S button on the Navigation panel.



- 2 On the Function panel, use the following controls.



Use:	To:
Wheels	Reposition the image. Wheel 1=Pan X Wheel 2=Pan Y Wheel 3=Scale Wheel 4=Rotate To reset a wheel, press the button above it.
Knob at right	Change the image's aspect ratio. To reset, press the button below it.
First row of buttons at bottom right	Flip or flop the image. F1=Flip F3=Flop
SHOW button	Toggle the geometry wireframe on or off.

# Performing Colour Grading

You can use the Autodesk control surface to perform input and output grading in Logarithmic or Linear mode.

As with other menus, you select the Grade menu from the Navigation panel. This activates colour grading functionality on the Function panel. The Colour Grading panel is enabled regardless of which menu is active in the Function panel. The features available on these panels depend on whether you are in Logarithmic or Linear mode. You specify the colour architecture in the Setup Grade menu in the user interface.

## Logarithmic Mode

When Log is enabled in the Setup Grade menu, the Colour Grading panel and the Function panel are activated with logarithmic colour grading functionality.

### Grading in Logarithmic Mode Using the Colour Grading Panel

Use the Colour Grading panel to:

- Adjust brightness balance and contrast balance for the entire image or for a range of colours.
- Adjust brightness in the shadows, midtones, and highlights.

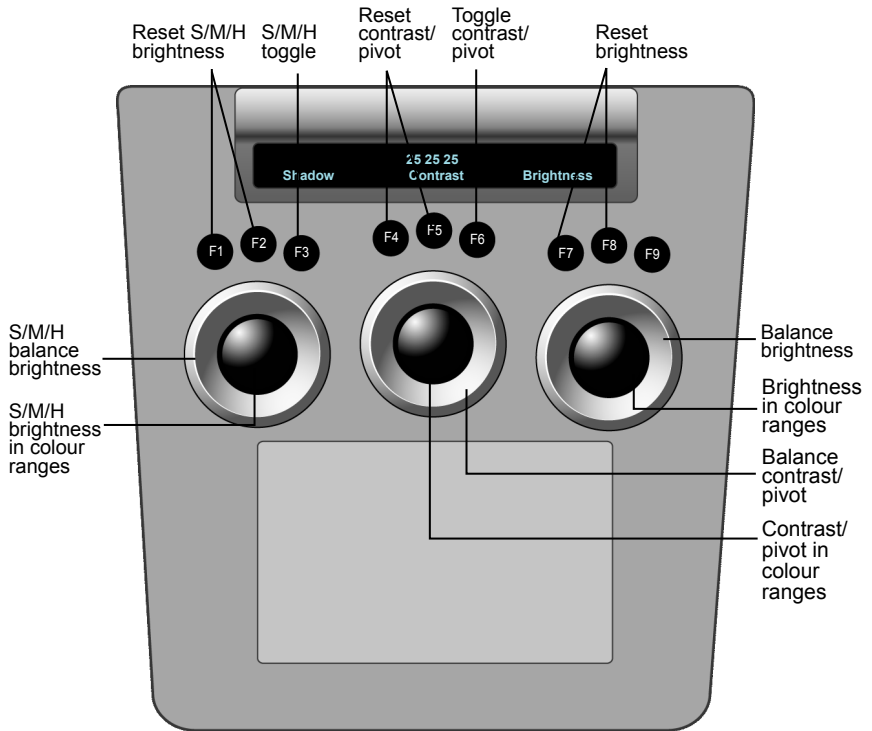
There are two available setups for the Colour Grading panel. You can switch between setups by pressing the F9 button.

The default setup allows you to modify contrast, overall brightness, and brightness in the shadows, midtones, and highlights. Adjusting brightness in the shadows, midtones, and highlights requires that you switch the functionality of the first trackball among the three. You use the second and third trackballs to adjust contrast and brightness in the overall image.

The alternate setup distributes brightness controls for the shadows, midtones, and highlights amongst the three trackballs. This allows you to balance the values without having to constantly switch the functionality of a single trackball.

### To colour grade using the Colour Grading panel default setup:

- On the Colour Grading panel, use the following controls.

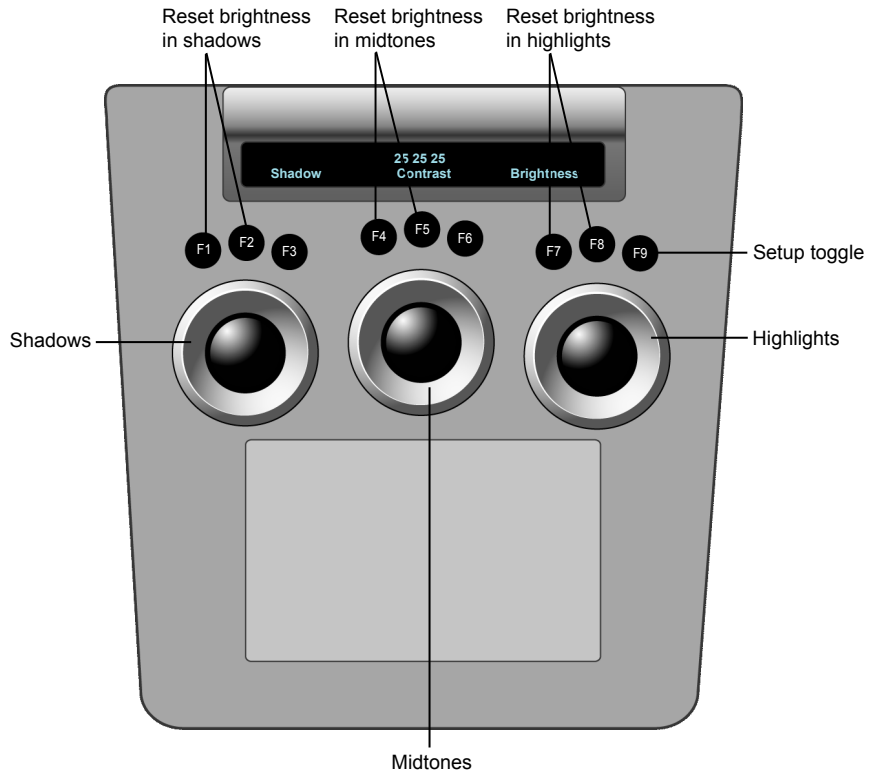


Use:	To:
First ring	Adjust brightness in the shadows, midtones, or highlights for the overall image. To reset, press F1.
First jog ball	Adjust brightness in the shadows, midtones, or highlights for a range of colours. To reset, press F2.
F3 button	Switch functionality for the first trackball between shadows, midtones, or highlights.
Second ring	Adjust contrast/pivot in the overall image. To reset, press F4.
Second jog ball	Adjust contrast/pivot in a range of colours. To reset, press F5.
F6 button	Toggle functionality for the second trackball between contrast and pivot.
Third ring	Adjust brightness in the overall image. To reset, press F7.

<b>Use:</b>	<b>To:</b>
Third jog ball	Adjust brightness in a range of colours. To reset, press F8.

**To colour grade using the Colour Grading panel alternate setup:**

- 1 Press the F9 button to switch to the alternate setup.
- 2 On the Colour Grading panel, use the following controls.



<b>Use:</b>	<b>To:</b>
First ring	Adjust overall brightness in the shadows. To reset, press F1.
First jog ball	Adjust brightness in the shadows for a range of colours. To reset, press F2.

<b>Use:</b>	<b>To:</b>
Second ring	Adjust overall brightness in the midtones. To reset, press F4.
Second jog ball	Adjust brightness in the midtones for a range of colours. To reset, press F5.
Third ring	Adjust overall brightness in the highlights. To reset, press F7.
Third jog ball	Adjust brightness in the highlights for a range of colours. To reset, press F8.
F9 button	Toggle between the panel default and alternate setup.

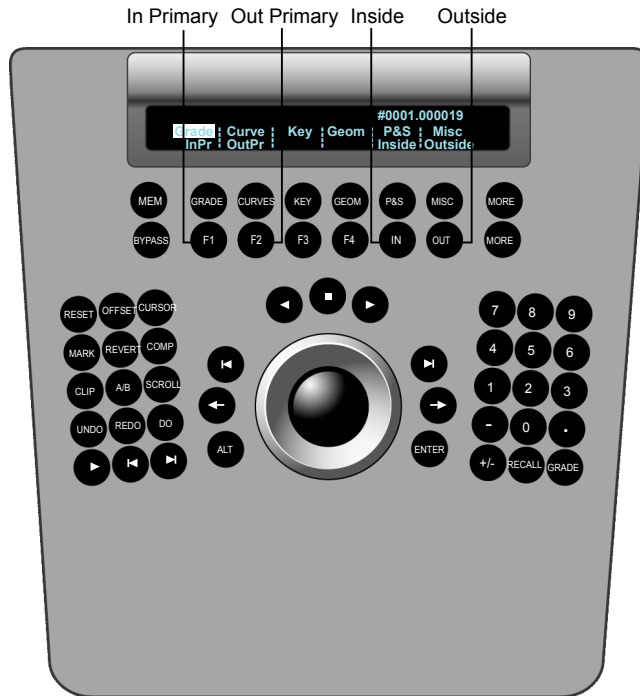
### **Grading in Logarithmic Mode Using the Function Panel**

When the Grade menu is enabled, you can use the Function panel to:

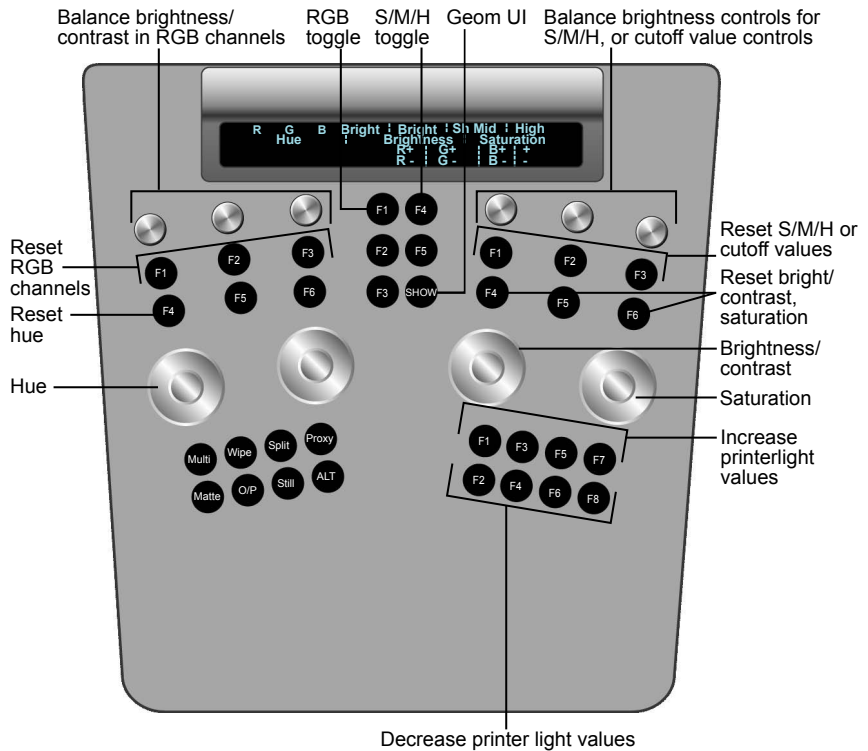
- Adjust overall hue, brightness, and saturation.
- Balance brightness and contrast in the red, green, and blue channels.
- Balance brightness of colours in the shadows, midtones, and highlights.
- Adjust cutoff values.
- Increase or decrease printer light settings.

#### **To colour grade in Logarithmic mode using the Function panel:**

- 1 Press the Grade button on the Navigation panel.  
The In Primary, Out Primary, Inside, and Outside options are activated.



- 2 Do one of the following:
  - Press the F1 option button to work on the initial primary grade.
  - Press the F2 option button to work on final curve modifications.
  - If you are colour grading a secondary, either a key or a geometry, use the numeric keys on the Navigation panel to select and enable a secondary layer. Press the number key once to select the layer, and then press it a second time to enable it. To enable layer 10, press the minus button (-). To enable layer 11, press 0. To enable layer 12, press the decimal button (.).
- 3 If you are accessing the Grade menu after having created a geometry or key, do one of the following:
  - Press the IN option button to grade inside the secondary.
  - Press the OUT option button to grade outside the secondary.
- 4 On the Function panel, use the following controls.



Use:	To:
Wheels	Modify overall hue, brightness/contrast, and saturation. Wheel 1=Hue Wheel 3=Brightness/contrast Wheel 4=Saturation To reset a wheel, press the button above it.
Knobs at top left	Balance brightness or contrast in the RGB channels. Knob 1=Red brightness/contrast Knob 2=Green brightness/contrast Knob 3=Blue brightness/contrast To toggle knob functionality, press the F1 button in the centre column. To reset a channel, press the button below it.

<b>Use:</b>	<b>To:</b>
Knobs at top right	Balance S/M/H brightness of the colours, or adjust cutoff values. Knob 4=Brightness in shadows/cutoff values Knob 5=Brightness in midtones/cutoff values Knob 6=Brightness in highlights To toggle knob functionality, press the F4 button in the centre column. To reset a knob, press the button below it.
First row of buttons at bottom right	Increase printer light values. F1=Red F3=Blue F5=Green F7=Overall
Second row of buttons at bottom right	Decrease printer light values. F2=Red F4=Blue F6=Green F8=Overall Press ALT for half point adjustments.
SHOW button	Toggle the geometry wireframe on or off.

## Linear Mode

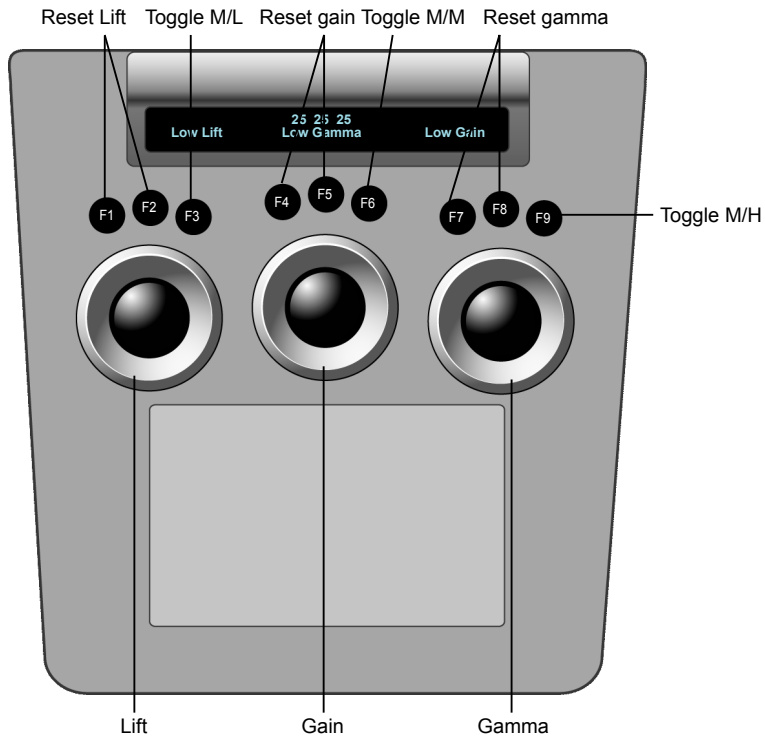
When Lin is enabled in the Setup Grade menu, the Colour Grading panel and the Function panel are activated with linear colour grading functionality.

### Grading in Linear Mode Using the Colour Grading Panel

Use the Colour Grading panel to modify lift, gain, and gamma in the low, mid, and high levels of the image, or across the entire image.

#### To colour grade in Linear mode using the Colour Grading panel:

- On the Colour Grading panel, use the following controls.



Use:	To:
First ring	Modify lift in the overall image. To reset, press the F1 button.
First jog ball	Modify lift in a range of colours. To reset, press the F2 button.
Second ring	Modify gain in the overall image. To reset, press the F4 button.
Second jog ball	Modify gain in a range of colours. To reset, press the F5 button.
Third ring	Modify gamma in the overall image. To reset, press the F7 button.
Third jog ball	Modify gamma in a range of colours. To reset, press the F8 button.
F3 button	Toggle between Master and Low levels.
F6 button	Toggle between Master and Mid levels.
F9 button	Toggle between Master and High levels.

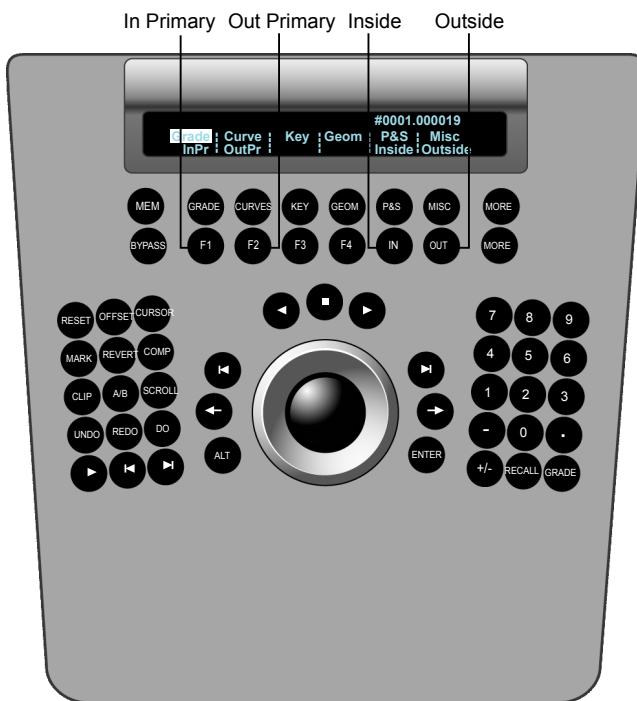
## Grading in Linear Mode Using the Function Panel

When the Grade menu is enabled, you can use the Function panel to:

- Modify hue, contrast, gain, and saturation values.
- Balance lift, gamma, and gain values for the red, green, and blue channels.
- Set black and white clip and reference values.

### To colour grade in Linear mode using the Function panel:

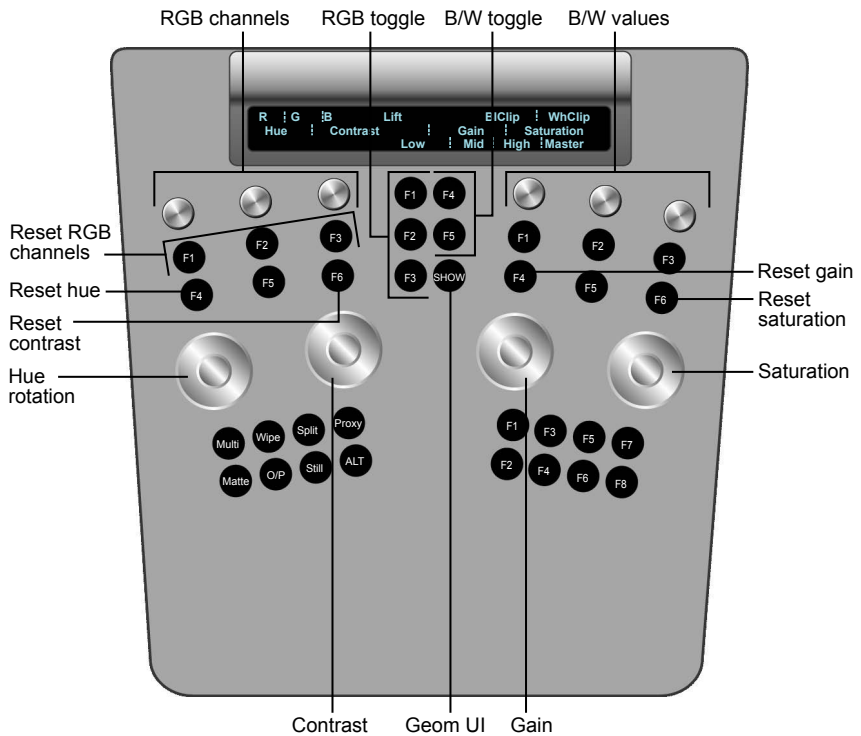
- 1 Press the Grade button on the Navigation panel.  
The In Primary, Out Primary, Inside, and Outside options are activated.



- 2 Do one of the following:
  - Press the F1 option button to work on the initial primary grade.
  - Press the F2 option button to work on final curve modifications.
  - If you are colour grading a secondary, either a key or a geometry, use the numeric keys on the Navigation panel to select and enable a

secondary layer. Press the number key once to select the layer, and then press it a second time to enable it. To enable layer 10, press the minus button (-). To enable layer 11, press 0. To enable layer 12, press the decimal button (.).

- 3 If you are accessing the Grade menu after having created a geometry or key, do one of the following:
  - Press the IN option button to grade inside the secondary.
  - Press the OUT option button to grade outside the secondary.
- 4 On the Function panel, use the following controls.



**Use:** \_\_\_\_\_ **To:** \_\_\_\_\_

Wheels

Modify overall hue, contrast, gain, and saturation.  
 Wheel 1=Hue  
 Wheel 2=Contrast  
 Wheel 3=Gain

Use:	To:
	Wheel 4=Saturation To reset a wheel, press the button above it.
Knobs at top left	Balance the RGB channels. Knob 1=Red Knob 2=Green Knob 3=Blue To reset a knob, press the button below it.
Buttons in left centre column	Toggle the type of value to be adjusted in the RGB channels (Knobs 1-3). F1=Lift F2=Gamma F3=Gain
Knobs at top right	Define values to clamp minimum and maximum luminance. Knob 4=Black Knob 5=White
Buttons in right centre column	Toggle the type of black and white values to be adjusted (Knobs 4-5). F4=Clip F5=Reference
SHOW button	Toggle the geometry wireframe on or off.

## Performing Curves Grading

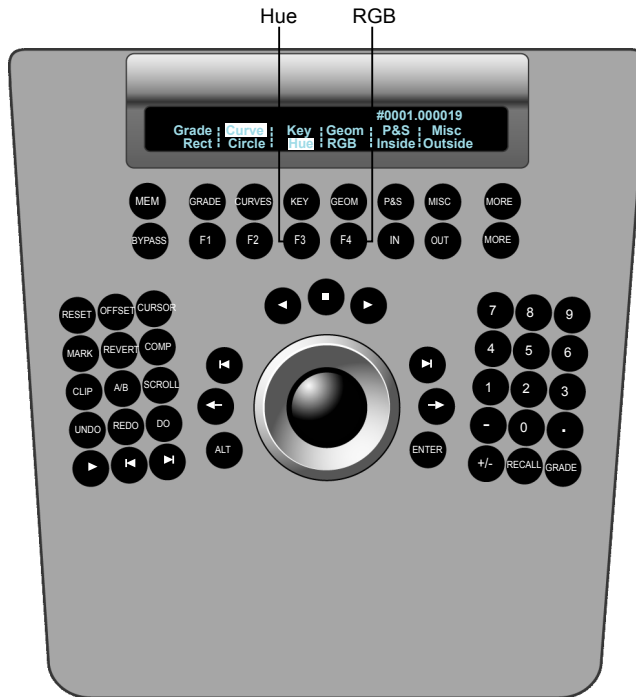
When the Curves menu is enabled, you can use the Function panel to:

- Modify Hue and RGB curves either after the initial primary colour grade, or after the addition of any ACS Sparks® effects.
- Adjust the Hue, Lightness, Saturation, and Luminance curves separately.
- Modify the entire curve uniformly or modify individual vertices for RGBCMY channels (red, green, blue, cyan, magenta, and yellow).

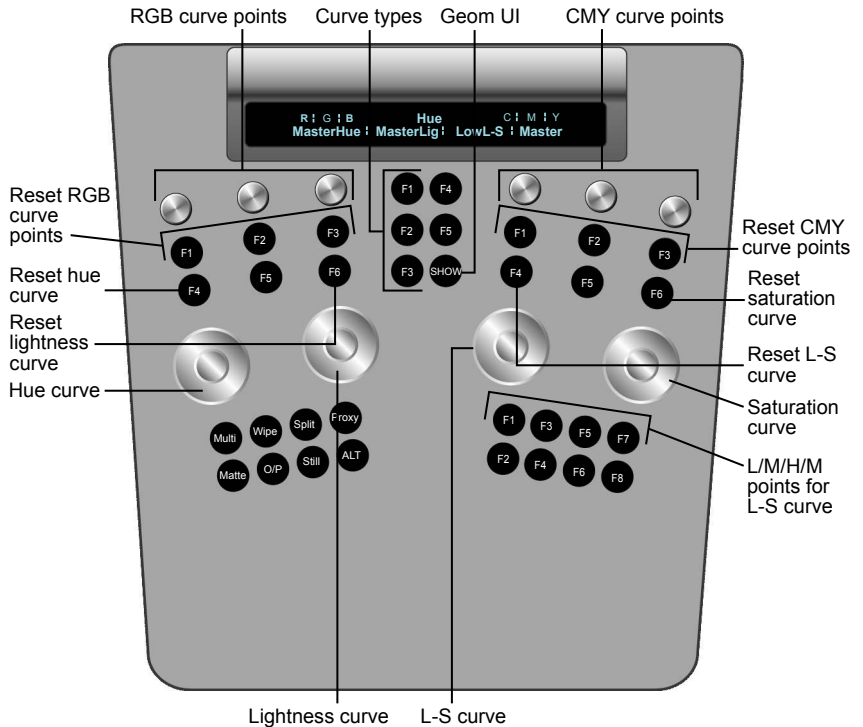
### To modify Hue and RGB curves:

- 1 Press Curves on the Navigation panel.

The In Primary, Out Primary, Hue, and RGB options are activated.



- 2 Do one of the following:
  - Press the F1 option button to indicate that you are working on the initial primary grade.
  - Press the F2 option button to indicate that you are working on final curve modifications.
- 3 Do one of the following:
  - Press the F3 option button to work on Hue curves.
  - Press the F4 option button to work on RGB curves.
- 4 On the Function panel, use the following controls.



Use:	To:
Wheels	Make overall changes to curves. Wheel 1=Hue curves Wheel 2=Lightness curves Wheel 3=L-S curves Wheel 4=Saturation curves To reset a wheel, press the button above it.
Knobs at top left and top right	Individually modify RGBCMY curve points. Knob 1=Red Knob 2=Green Knob 3=Blue Knob 4=Cyan Knob 5=Magenta Knob 6=Yellow To reset a knob, press the button below it.

Use:	To:
Buttons in centre column	Select the type of curve to be modified using the RGBCMY curve points. F1=Hue F2=Light F3=Saturation If you press the F1 button when working with RGB curves, you are toggled to Hue curves.
First row of buttons at bottom right	Select the low point, mid point, high point, or all for the L-S curve. F1=Low F3=Mid F5=High F7=Master
SHOW button	Toggle the geometry wireframe on or off.

## Extracting Keys

ACS provides two separate keyers for extracting keys. When the Key menu is enabled, you can use the Function panel to work with:

- the Hue, Luminance, and Saturation (HLS) Keyer. See [Extracting Keys using the HLS Keyer](#) on page 44.
- the Diamond Keyer. See [Extracting Keys using the Diamond Keyer](#) on page 51.

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**NOTE** The keyer default is set in the ACS user interface. See the Tools Settings section in the Project Management chapter of the *Autodesk ACS 2009 User Guide*.

---

## Extracting Keys using the HLS Keyer

Use the Navigation panel to:

- Enable the HLS Keyer.
- Select a secondary layer.

- Sample the image.
- Extract a key.

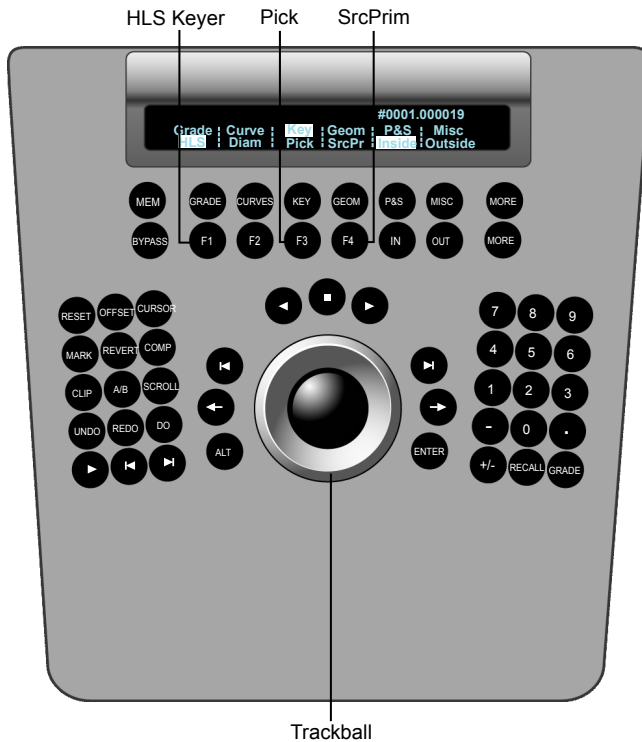
Use the Function panel to:

Adjust the key by setting softness and tolerance ranges, modifying key edges, inverting the key, and linking layers.

**To enable the HLS Keyer in the Navigation panel:**

- Press the Key button once to activate the Key menu, and then press F1 to enable the HLS Keyer.

The HLS Keyer and Inside are enabled.



**To select a secondary layer in the Navigation panel:**

- Use the numeric keys to select and enable a secondary layer. Press the number key once to select the layer, and then double-press it to enable

it. To enable layer 10, press the minus button (-). To enable layer 11, press 0. To enable layer 12, press the c button.

**To sample the image in the Navigation panel:**

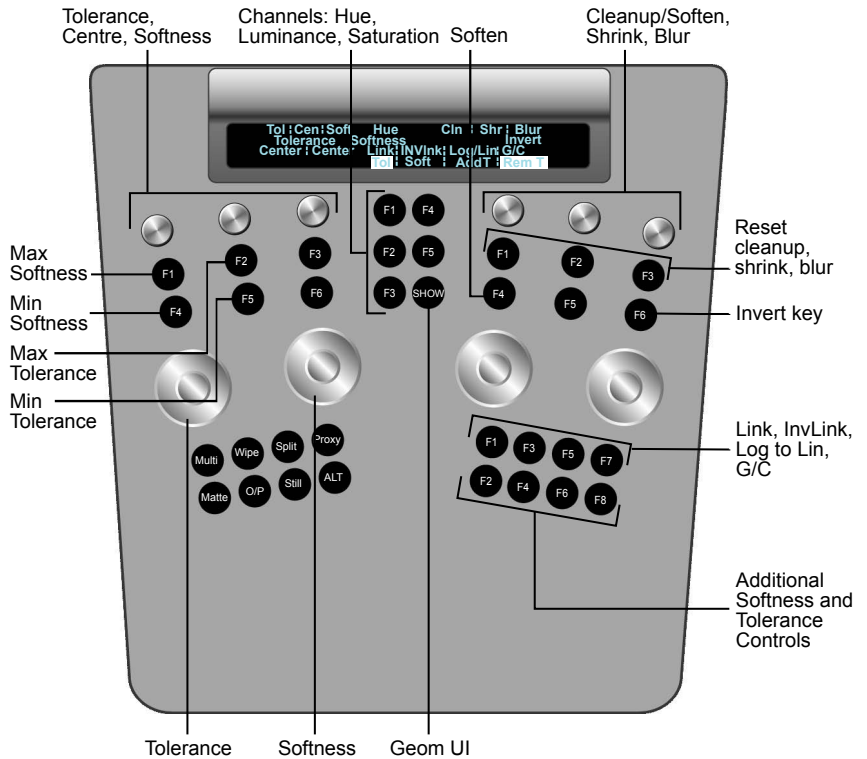
- Press F3 (pick). The trackball on the Navigation panel is activated as a picker, allowing you to move through the image. Press F3 again to pick the current pixel for the sample. To sample an area of the image, hold down the ALT button while in picker mode and draw, with the trackball, a rectangular area of the image, and then release the ALT button.

**To extract a key in the Navigation panel:**

- To extract a key after input primary grading has been performed, press F4. To switch back to the primary-graded result, press F4 again.

**To adjust a key in the Function panel:**

- Use the following controls listed in the table below to adjust the key for the sampled colour.



Use:	To:
Wheels	Adjust the tolerance and softness around the picked colour. Wheel 1=Tolerance Wheel 2=Softness
Knobs at top left	Adjust minimum/maximum tolerance, centre tolerance, and minimum/maximum softness. Knob 1=Minimum/maximum tolerance Knob 2=Centre Knob 3=Minimum/maximum softness
Upper left F1 and F4 buttons	Enable either minimum or maximum tolerance (Knob 1) adjustments. F1=Minimum F4=Maximum

<b>Use:</b>	<b>To:</b>
Upper left F3 and F6 buttons	Enable either minimum or maximum softness (Knob 3) adjustments. F3=Minimum F6=Maximum
Buttons in centre column	Adjust tolerance, centre, and softness values separately for each of the channels forming the basis of the key. F1=Hue F2=Luminance F3=Saturation
Knobs at top right	Modify key edges and remove stray pixels from a key. Knob 4=Cleanup Knob 5=Shrink Knob 6=Blur
Buttons at top right	Press F1 to enable cleanup (Key-out), shrink, and blur. Press F4 to enable soften (Key-in filter). F1=Cleanup F2=Shrink F3=Blur F4=Soften Single press F2 and F3 to reset shrink and blur, respectively. Double-press F1 and F4 to reset cleanup and soften, respectively.
Upper right F6 button	Invert the key.
First row of buttons at bottom right	Press F1 to cycle through add, intersect, subtract, or link layers. F1=Add, intersect, subtract, or link F3=Invert link F5=Log to Lin F7=GPU compatibility
Second row of buttons at bottom right	Add or subtract tolerance and softness from the key. F2=Tolerance F4=Softness F6=Add softness/tolerance

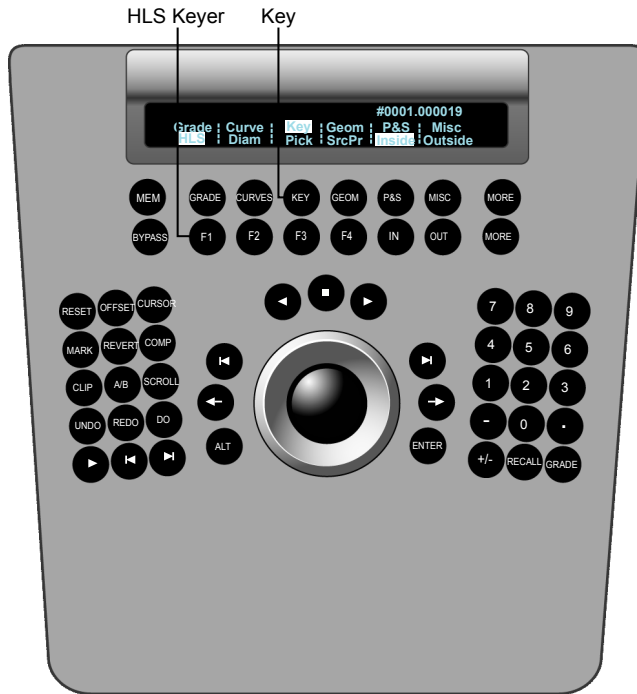
Use:	To:
	F8=Subtract softness/tolerance Press F3 on the Navigation panel to change the cursor into a picker prior to using any of the above buttons. When done defining tolerance and softness, press F3 again.
SHOW button	Toggle the geometry wireframe on or off.

## **Toggling the Keyer Button and Keyer Channels On and Off**

Users can toggle the on or off status of the Keyer button visible on the Navigation panel. Users can also enable or disable any or all of the Hue, Luminance, or Saturation channels on the Function panel.

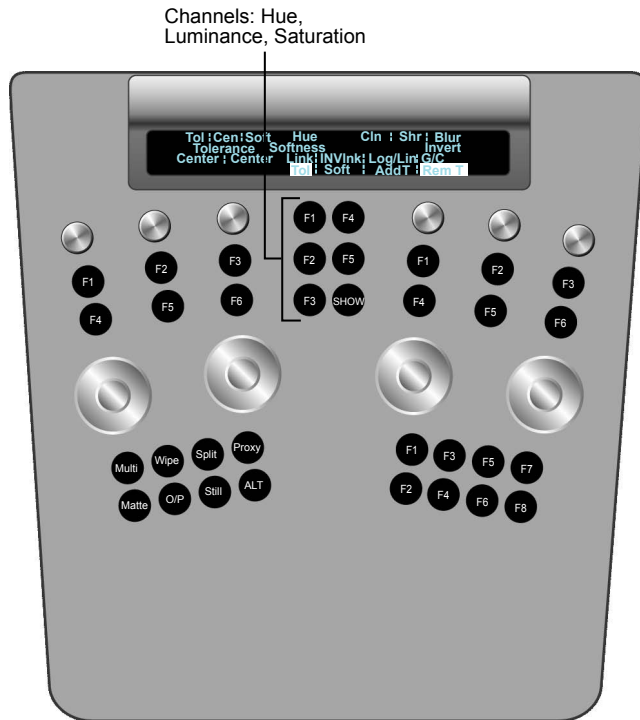
### **To make the HLS Keyer status visible on the Navigation panel:**

- 1** Press the Key button once to activate the Key menu, and then press F1 to enable the HLS Keyer channel and activate backlighting to show its enabled status.
- 2** Double-press the F1 button to disable the HLS Keyer channel.  
 The HLS Keyer is disabled in the ACS application.



**To enable or disable the Hue, Luminance, or Saturation channels on the Function panel:**

- Double-press F1, F2, or F3.



## Extracting Keys using the Diamond Keyer

Use the Navigation panel to:

- Enable the Diamond Keyer.
- Select a secondary layer.
- Sample the image.
- Extract a key.

Use the Function panel to:

Adjust the key by setting softness and tolerance ranges, modifying key edges, inverting the key, and linking layers.

### To enable the Diamond Keyer in the Navigation panel:

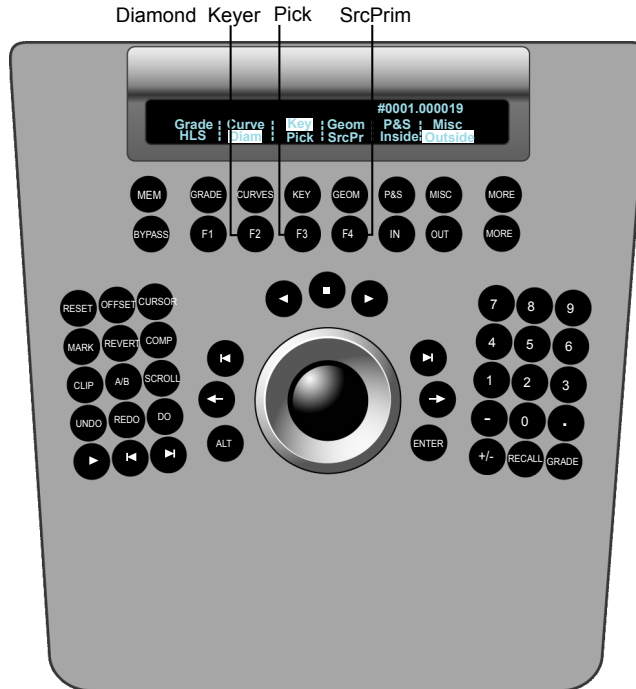
- Press the Key button once to activate the Key menu, and then press F2 to select the Diamond Keyer.

The Diamond Keyer is enabled.

---

**NOTE** To hide/show the hue cube, press Alt+Show.

---



### To select a secondary layer in the Navigation panel:

- Use the numeric keys to select and enable a secondary layer. Press the number key once to select the layer, and then double-press to enable it. To enable layer 10, press the minus button (-). To enable layer 11, press 0. To enable layer 12, press the c button.

### To sample the image in the Navigation panel:

- Press F3 (pick). The trackball on the Navigation panel is activated as a picker, allowing you to move through the image. Press F3 again to pick

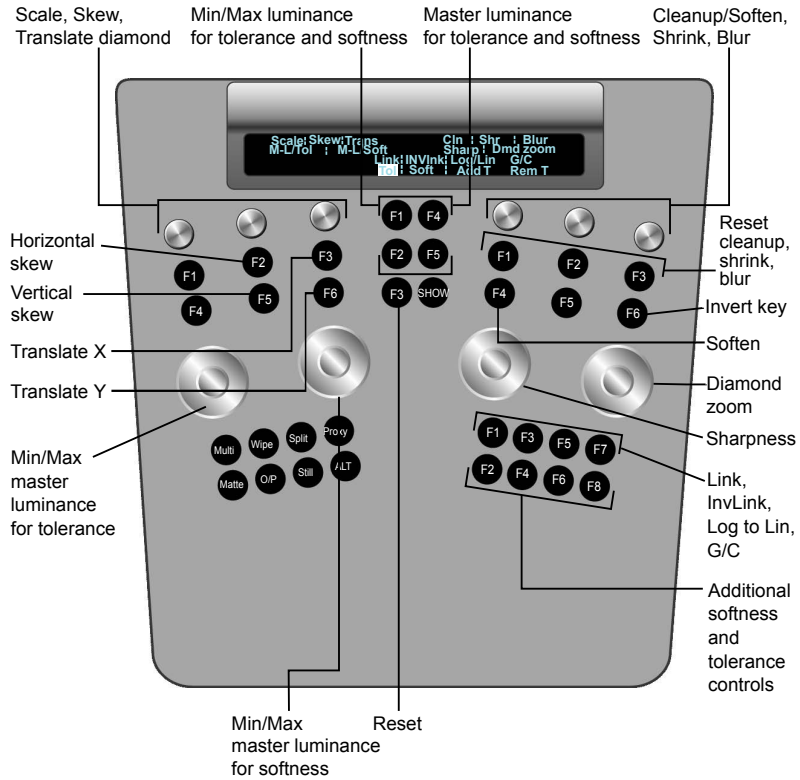
the current pixel for the sample. To sample an area of the image, hold down the ALT button while in picker mode and draw, with the trackball, a rectangular area of the image, and then release the ALT button.

**To extract a key in the Navigation panel:**

- To extract a key after input primary grading has been performed and the input LUT has been applied, press F4. To switch back to the primary-graded result, press F4 again.

**To adjust a key in the Function panel:**

- Use the following controls listed in the table below to adjust the key for the sampled colour.



Use:	To:
Wheels	Adjust tolerance, softness, and sharpness around the picked colour. Zoom in (left) and zoom out (right). Wheel 1= Tolerance Wheel 2= Softness Wheel 3= Sharpness Wheel 4= Zoom in/out
Knobs at top left	Scale, skew, or translate (move) the chrominance Softness and chrominance Tolerance Diamonds. Knob 1= Scale Knob 2= Skew Knob 3= Translate

<b>Use:</b>	<b>To:</b>
Upper left F2 and F5 buttons	Skew the chrominance Tolerance or chrominance Softness Diamonds horizontally and vertically. F2=Horizontal skew F5=Vertical skew
Upper left F3 and F6 buttons	Move the Softness Diamond or Tolerance Diamond left or right, up or down. F3=X-axis (left or right) F6=Y-axis (up or down)
Buttons in centre column	Enable master luminance for tolerance and softness and minimum/maximum luminance levels for tolerance and softness. F1=Master luminance for tolerance F2=Minimum/maximum for luminance for tolerance F4=Master luminance for softness F5=Minimum/maximum luminance for softness
Knobs at top right	Modify key edges and remove stray pixels from a key. Reduce image grain and noise, and keep edges intact prior to keyer input processing. Knob 4=Cleanup/Soften toggle Knob 5=Shrink Knob 6=Blur
Upper right buttons	Press F1 to enable cleanup (Key-out filter), shrink, and blur. Press F4 to enable soften (Key-in filter). F1=Cleanup F2=Shrink F3=Blur F4=Soften Single-press F2 and F3 to reset shrink and blur, respectively. Double-press F1 and F4 to reset cleanup and soften, respectively.
Upper right F6 button	F6=Invert the key
First row of buttons at bottom right	Press F1 to cycle through add, intersect, subtract, or link layers. F1=Add, intersect, subtract, or link F3=Invert link

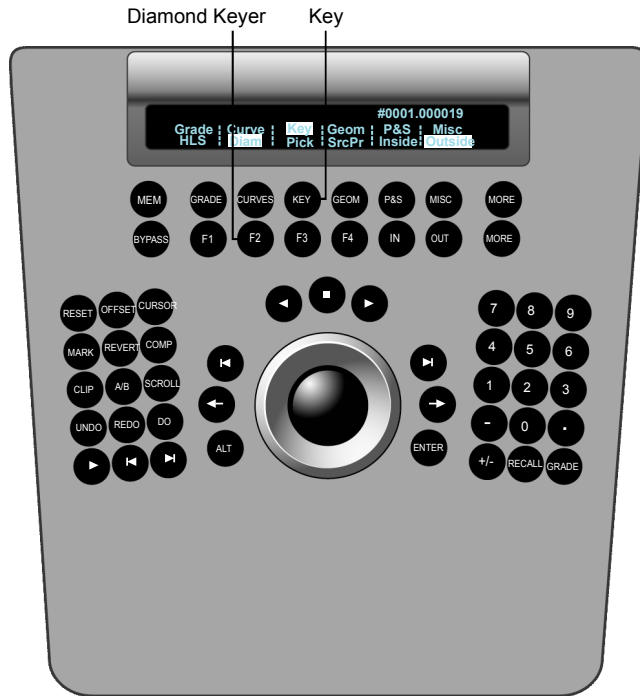
Use:	To:
	F5=Log to Lin F7=GPU Compatibility (G/C)
Second row of buttons at bottom right	Add softness/tolerance and remove softness/tolerance. F2=Tolerance F4=Softness F6=Add softness/tolerance F8=Remove softness/tolerance Press F3 on the Navigation panel to change the cursor into a picker prior to using any of the above buttons. When done defining tolerance and softness, press F3 again.
ALT+SHOW buttons	Toggle the hue cube on or off.

## Toggling the Diamond Keyer Button On and Off

Users can toggle the on or off status of the Diamond Keyer button visible on the Navigation panel.

### To make the Diamond Keyer status visible on the Navigation panel:

- 1 Press the Key button once to activate the Key menu, and then press F1 to enable the Diamond Keyer and activate backlighting to show its enabled status.
- 2 Double-press the F1 button to disable the Diamond Keyer.  
The Diamond Keyer is disabled in the ACS application.



## Creating and Grading Geometries

When the Geom menu is enabled, you can create and colour grade up to 12 secondaries by using the Function panel to:

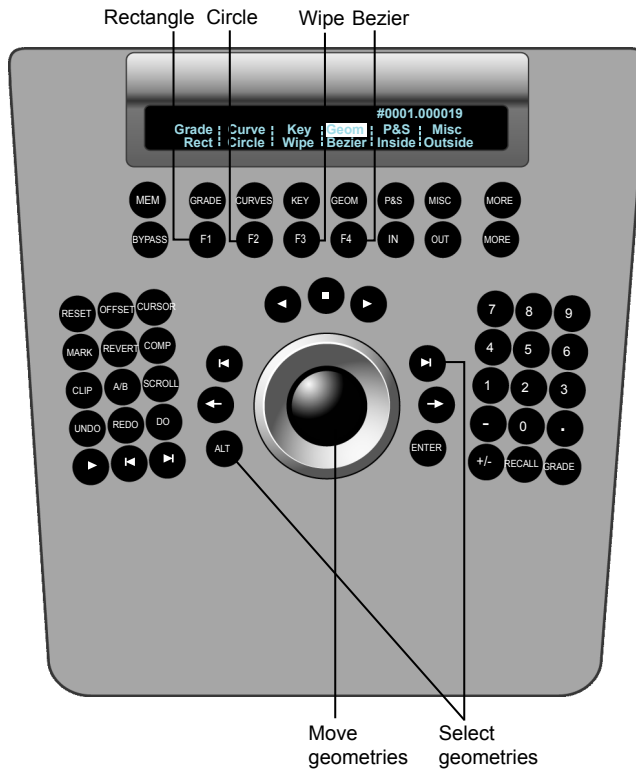
- Select a geometry type.
- Modify geometries.
- Link secondary layers.
- Delete geometries.

After you have created geometries, you can use the Grade menu to colour grade them.

### To create geometries:

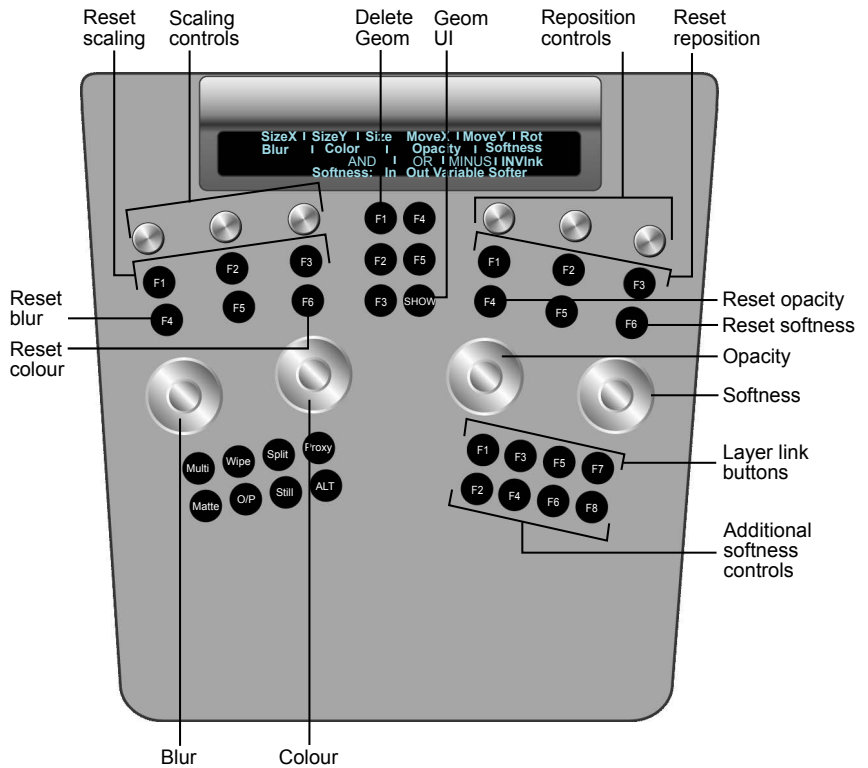
- 1 Press the Geom button on the Navigation panel.

The Rectangle, Circle, Wipe (split screen), and Bezier (free-form geometry) options are activated.



- 2 Use the numeric keys on the Navigation panel to select and enable a secondary layer. Press the number key once to select the layer, and then press it a second time to enable it. To enable layer 10, press the minus button (-). To enable layer 11, press 0. To enable layer 12, press the decimal button (.).
- 3 Do one of the following:
  - Press F1 to add a rectangle.
  - Press F2 to add a circle.
  - Press F3 to add a wipe.
  - Press F4 to add a Bezier shape using the pen or mouse.

- 4 Use the jog ball as a geometry mover and press the ALT and shot forward buttons to select the geometries on the current active secondary layer.
- 5 On the Function panel, use the following controls to adjust the geometry.



**Use:**

Wheels

**To:**

Modify the geometry's blur, colour, opacity, and softness.  
 Wheel 1=Blur  
 Wheel 2=Colour  
 Wheel 3=Opacity  
 Wheel 4=Softness  
 The direction for edge softness is inwards or outwards depending on the direction that you rotate the wheel. To reset a wheel, press the button above it.

Use:	To:
Knobs at top left	Scale the geometry. Knob 1=Size X Knob 2=Size Y Knob 3=Master (scales in locked proportions) To reset a knob, press the button below it.
Knobs at top right	Move the geometry. Knob 1=Move X Knob 2=Move Y Knob 3=Rotate To reset a knob, press the button below it.
First row of buttons at bottom right	Link secondary layers. F1=Add F3=Intersect F5=Subtract F7=Invert link
Second row of buttons at bottom right	Further modify softness. F2=Apply softness inside mask border F4=Apply softness outside mask border F6=Apply variable softness F8=Change softness type
F1 button in centre column	Delete the currently active geometry.
SHOW button	Toggle the geometry wireframe on or off.

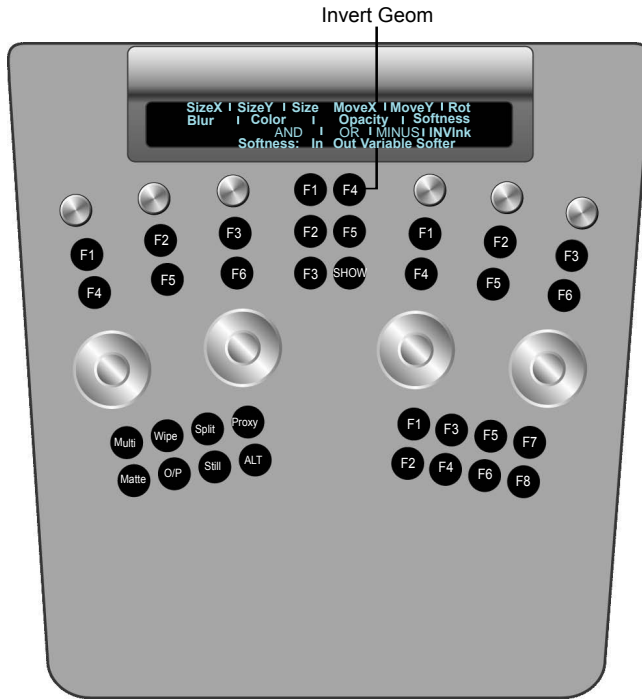
- To colour grade the geometry, select either the Inside or Outside option button depending on whether colour grading should occur inside or outside the geometry. See [Performing Colour Grading](#) on page 31.

## Geometry Invert Functionality

Users can invert geometries on the current secondary layer using the Autodesk control surface.

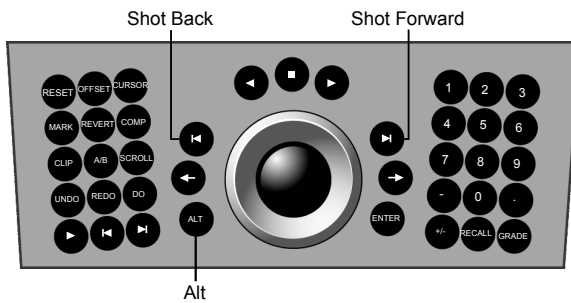
**To invert geometries using the Autodesk control surface:**

- On the Function panel, press the F4 button in the centre column.



## Cycling Among Geometries

You can now move from one geometry to the next in the order of their creation.



To cycle among geometries:

- With the Geom menu enabled, hold down the ALT button on the Navigation panel and then press the Shot Forward or Shot Back button to cycle forward or backwards.

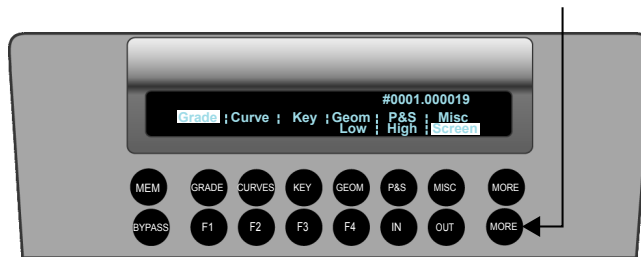
## Modifying the Appearance of the Autodesk Control Surface

You can customize the appearance of the control surface by accessing options from the bottom More button on the Navigation panel. Use these options to determine the brightness of:

- Backlighting for all buttons
- Backlighting for a button being pressed
- Backlighting for active and available buttons
- The digital display

To modify the appearance of the Autodesk control surface:

- 1 Press the bottom More button on the Navigation panel.



The Low, High, and Screen options appear in the digital display.

- 2 Press one of the following option buttons and use the ring portion of the trackball to increase or decrease brightness.

Press:	To change the brightness of:
F4	Backlighting for all buttons on the control surface. The change is visible as you modify with the ring.

---

<b>Press:</b>	<b>To change the brightness of:</b>
IN	Backlighting for a button that is being pressed. The change is visible only when you press a button after having used the ring.
OUT	The digital display. The change is visible as you modify with the ring.

---



# The Tangent CP100 Control Surface

# 2

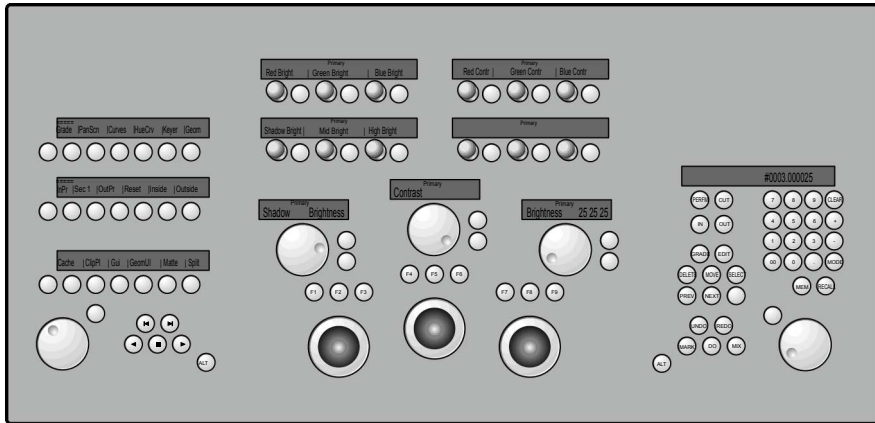
## Topics in this chapter:

- [About the Tangent CP100 Control Surface](#) on page 66
- [Customizing the View](#) on page 67
- [Toggling Play Mode](#) on page 69
- [Caching Memory](#) on page 69
- [Navigating the Storyboard](#) on page 69
- [Undo List](#) on page 71
- [Resetting Parameters](#) on page 72
- [Copying Grades](#) on page 74
- [Adding and Moving Keyframes](#) on page 75
- [Repositioning Shots](#) on page 75
- [Primary Colour Grading](#) on page 76
- [Modifying the Hue, Saturation, and Lightness Curves](#) on page 80
- [Secondary Colour Grading](#) on page 81

# About the Tangent CP100 Control Surface

The Tangent CP100 control surface is designed to improve interactivity when colour grading film and video footage. You can accomplish many of the tasks you do in the ACS user interface using the Tangent CP100 control surface.

The Tangent CP100 control surface is only supported on the Master Station.



You can do the following tasks with the control surface:

- Customize the view
- Toggle play mode
- Cache memory
- Navigate the Storyboard
- Undo and redo operations
- Copy grades from one shot to another
- Create and modify keyframes
- Reposition shots
- Perform primary colour grading
- Modify Hue curves
- Perform secondary colour grading

---

**TIP** While you learn how to do each of these tasks, show the user interface so that you can view the results in the menus.

---

Most buttons and dials on the control surface are labelled. For information on connecting the Tangent CP100 control surface, refer to the *Autodesk Lustré Software Installation Guide* for your platform.

**To operate the control surface:**

- Do any of the following:
  - Press a button to select the displayed option.
  - Turn a dial to increase or decrease the value of the displayed channel or parameter. Turn clockwise to increase the value. Turn counter-clockwise to decrease it.
  - Use the Player controls to navigate the Storyboard.
  - Use the trackballs to modify the displayed parameter.

## Customizing the View

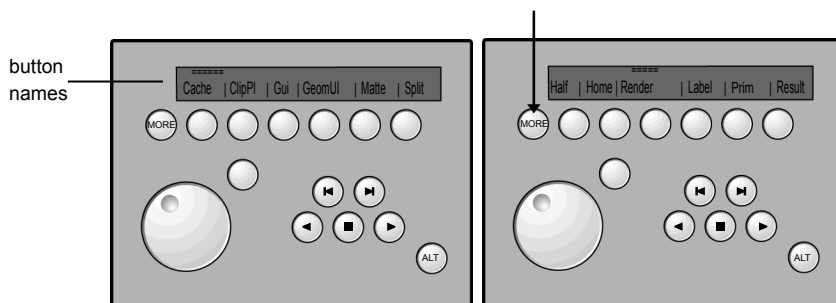
Use the controls on the lower right of the control surface to change the view as you work on your grades. For example, enable Half to view a half-resolution version of your shot in the Player.

You can select any of the following options.

Control Surface	Description	Hotkey or UI Option
GUI	Toggles the full-screen Player.	Enter
Geom UI	Shows or hides a geometry for the current secondary.	Show button in Secondaries menu
Matte	Switches between secondary view and result view.	F11 and F12
Split	Switches on and off split view in the Player. When you enable Split, you can press the PERFM button to enable multi-view and view up to 16 shots, or press the CUE button to switch between horizontal and vertical split view. These	F5, F3, and F4

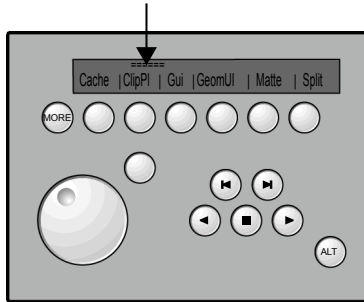
Control Surface	Description	Hotkey or UI Option
	buttons are located on the upper right of the control surface.	
Half	Switches between the full-resolution and half-resolution (proxy) version of your shot in the Player. If you have not rendered a proxy, an X appears in the Player.	F9
Zoom/Home	Switches between the 1x and 2x zoom.	F10
Render	Switches between a rendered version of your shot and output view. If you have not rendered the shot, an X appears in the Player.	P
Label	Toggles the shot name text on the image.	W
PRIM	Toggles the display of your shot. Displays your shot as it appears after modifications are made from the Grading or Curves menu, or as it currently appears (with the entire colour grade applied). You can use this option only after you have added secondaries.	I
Result	Displays the shot as it currently appears—with the grade applied.	O

**NOTE** Press the MORE button to view all the available options.



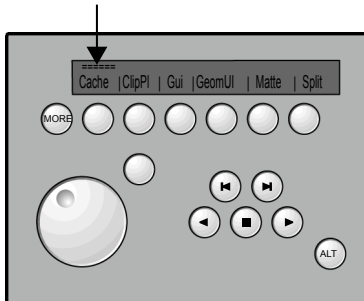
## Toggling Play Mode

You can loop play a shot or the entire Storyboard using the ClipPI button. This button corresponds to the Play Mode button in the user interface.



## Caching Memory

When a shot does not play back in real time, you can cache the frames into memory using the Cache button or by pressing **M**.

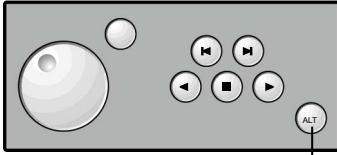


## Navigating the Storyboard

Use the Player controls on the lower right and the scrolling controls on the left to navigate the Storyboard.

Use the left dial (jog knob) and transport controls to play and scrub the Storyboard. You can also use the Alt button to switch between shots assigned to Playhead A and Playhead B.

### Player Controls



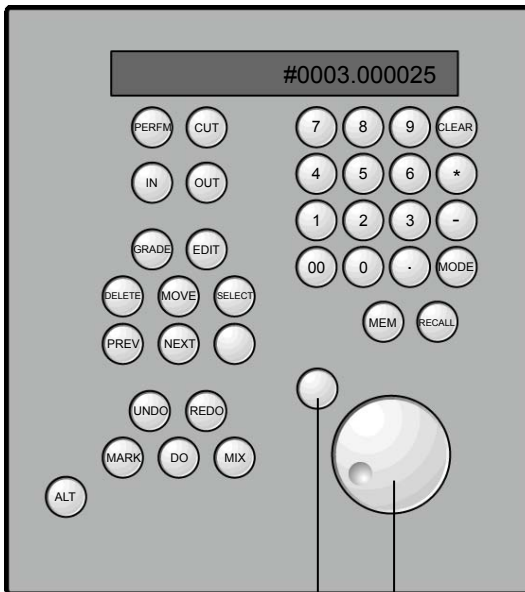
Playhead button

Use the right dial to scroll through the shots in the Storyboard. When you scroll, a yellow arrow in the Storyboard marks your position. You can then select the shot by pressing the button next to the dial.

---

**NOTE** If the shot is outlined in blue, you are in copy mode. See [Copying Grades](#) on page 74.

---



press to select to scroll

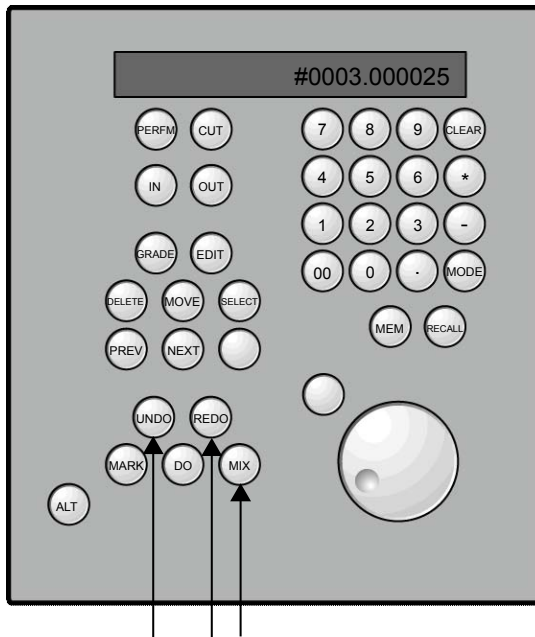
You can show the Storyboard all the time or only when you scroll. To show the Storyboard all the time, press **Tab** on the keyboard. To show the Storyboard only when you scroll, first hide it by pressing **Tab**, and then scroll the Storyboard. In this mode, you hide the Storyboard again by pressing the button next to the scroll dial.

# Undo List

The undo list works differently on the control surface than it does in the user interface. Use the buttons on the lower right of the control surface to work with the undo list.

## Saving to the Undo List

When you use the control surface, you must save your changes to the undo list. Undo lists are saved on a shot-by-shot basis. To save a change to the undo list, press Do. You can then press Undo and Redo to go through the undo list.



## Reverting to Previous Grades

Use the Alt button on the lower right to toggle between the grade that was applied to a shot when you first selected it in the Storyboard and the current grade.

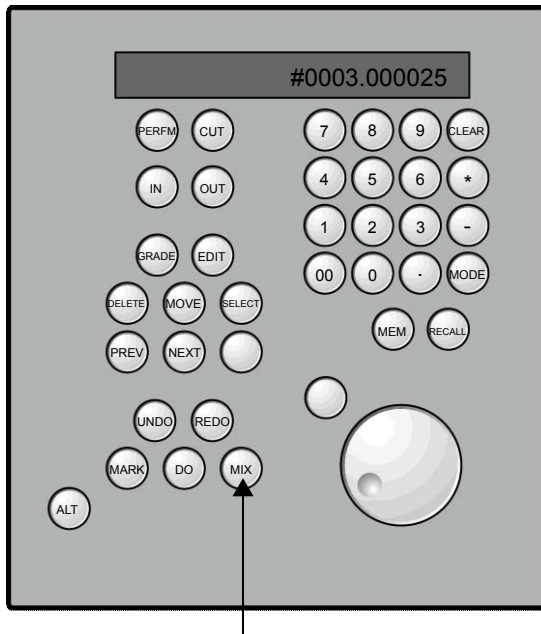
---

**TIP** To save the reverted stage to the undo list, press Do.

---

## Comparing Grades

You can compare the current image with the grade you last committed to the undo list. To toggle between these settings, use the Mix button.

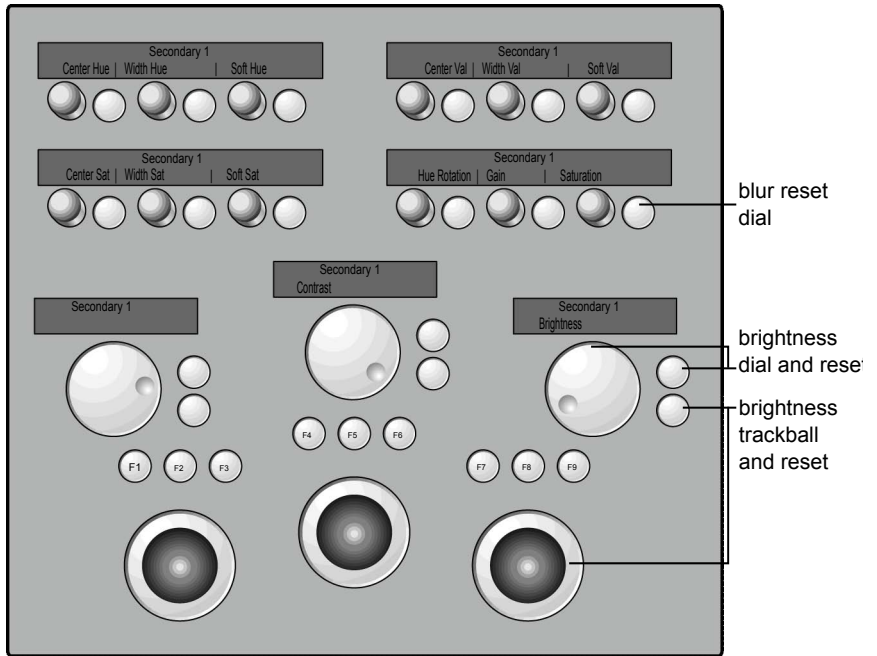


## Resetting Parameters

On a shot-by-shot basis, you can reset the parameters set in some menus. You can also reset a single parameter.

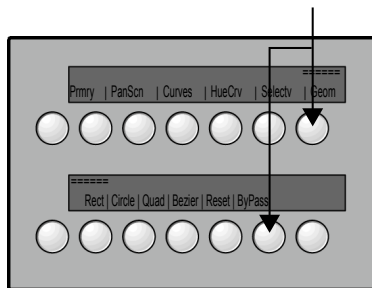
**To reset a parameter:**

- ▶ Press the Reset button associated with the dial or trackball.



**To reset a menu:**

- Select the menu and then enable Reset. For example, select Geom, and then press Reset to clear all secondaries.



# Copying Grades

You can temporarily or permanently copy a grade from another shot in the Storyboard to the current shot.

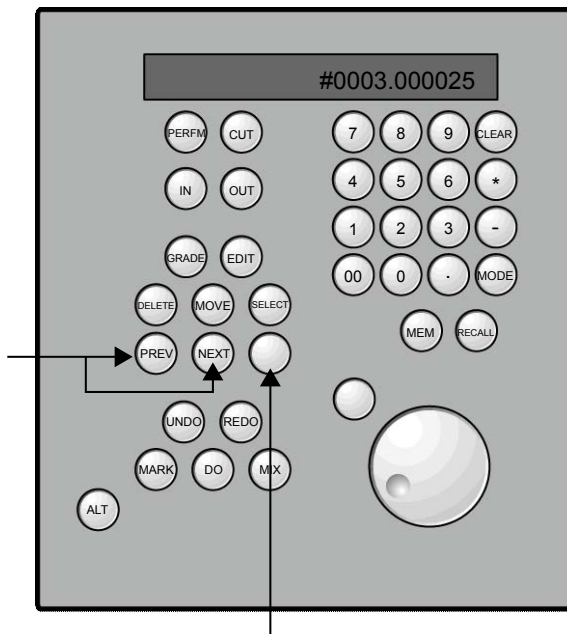
## To copy grades:

- 1 Do one of the following:
  - Press Prev or Next to temporarily apply the grade from the previous or next shot to the current shot (outlined in red or magenta). Press Prev or Next multiple times to move through the shots in the Storyboard. The selected shot is outlined in blue.
  - Press Offset and then scroll through the shots. As you scroll, the grades are temporarily applied to the current shot (outlined in red or magenta). The selected shot is outlined in blue.

---

**TIP** Press the Offset button again to switch to scroll mode.

---



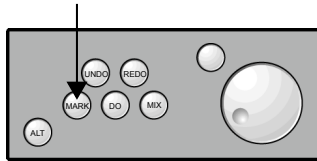
- 2 Press Do to permanently copy the grade from the shot outlined in blue to the current shot.

# Adding and Moving Keyframes

When you animate parameters, you can set keyframes using the Mark button. You can also adjust the timing of the first and last keyframes in the shot.

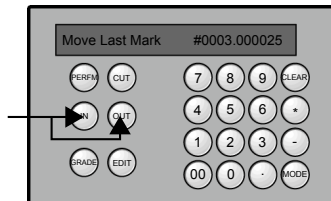
**To add a keyframe:**

- 1 Go to the frame where you want to add the keyframe.
- 2 Press Mark.



**To adjust the timing of an existing keyframe:**

- Do any of the following:
  - Press In and then use the right dial to move the first keyframe.
  - Press Out and then use the right dial to move the last keyframe.

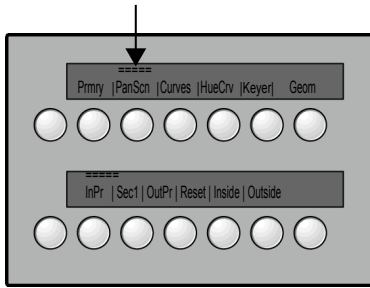


# Repositioning Shots

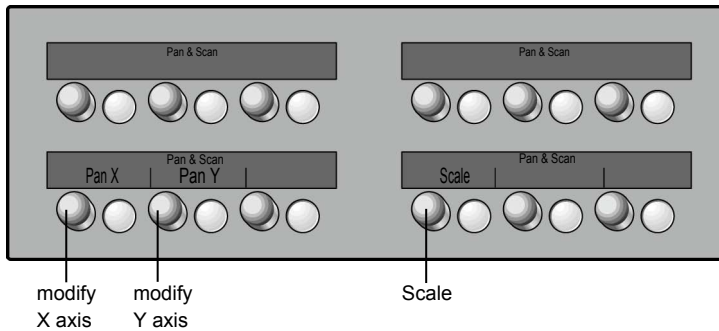
You can reposition a shot by scaling it, or by panning it vertically and horizontally.

**To reposition a shot:**

- 1 Enable PanScn.



2 Use the following controls to reposition the shot.



## Primary Colour Grading

You can use the dials and trackballs in the centre of the control surface to perform primary colour grading. Primary colour grading can be done from the Grade menu.

## Logarithmic Mode: Modifying Brightness and Contrast

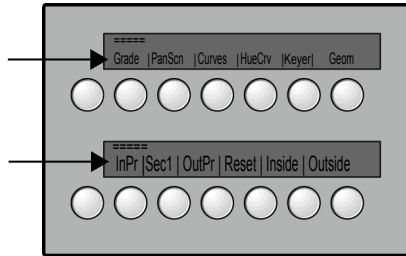
You can modify brightness and contrast in several ways from the Grade menu. You can modify:

- Overall brightness and contrast of the red, green, and blue channels together
- Overall brightness and contrast of the red, green, and blue channels separately
- Brightness balance and contrast balance

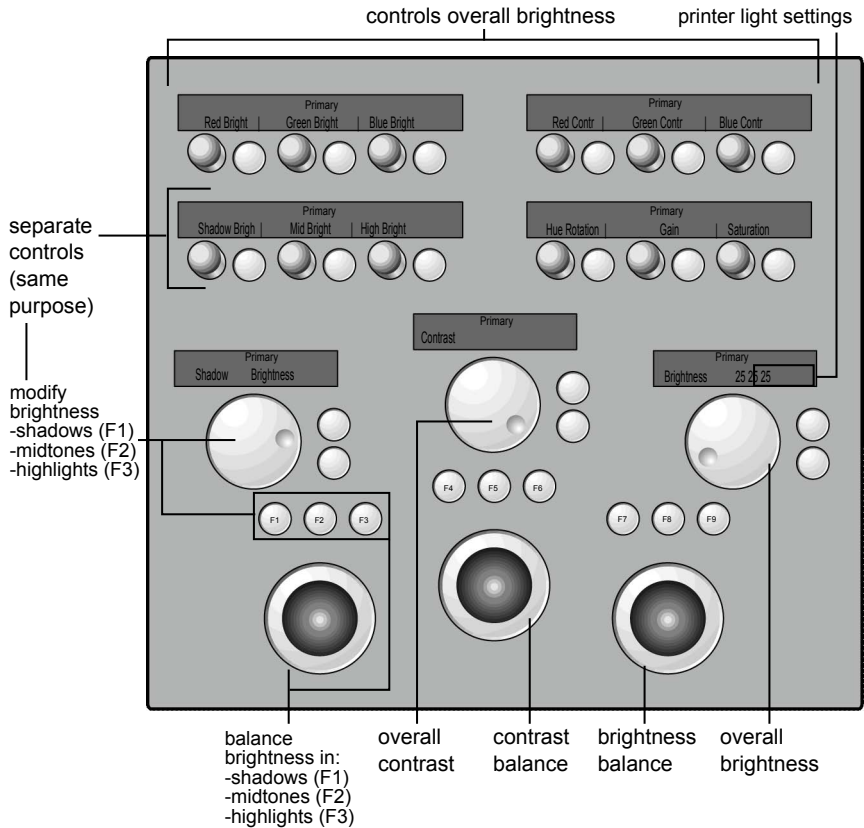
- Brightness in the shadows, midtones, and highlights

**To modify brightness and contrast:**

- 1 Enable Grade and then do one of the following:
  - Enable InPr to modify the input primary values.
  - Enable OutPr to modify the output primary values.



- 2 Use the following controls to perform primary colour grading.



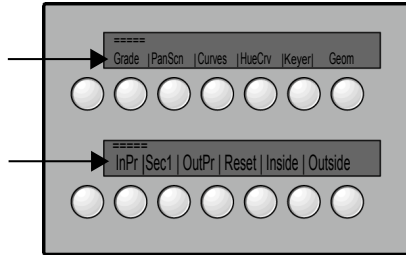
## Linear Mode: Modifying Gamma, Gain, and Lift

You can modify gamma, gain, and lift in several ways from the Grading menu. You can modify:

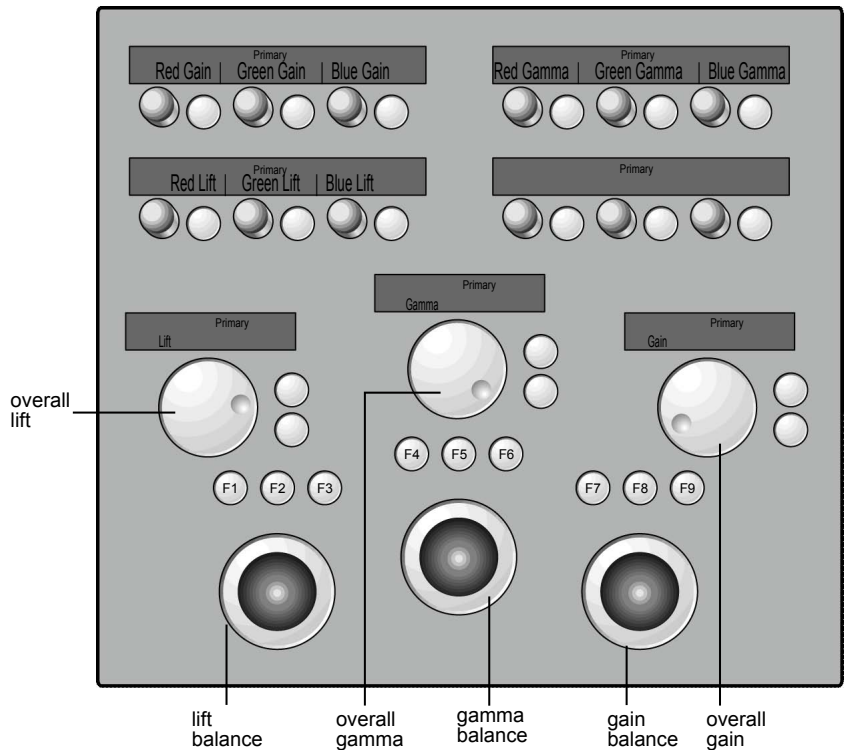
- Overall gamma, gain, and lift settings of the red, green, and blue channels together
- Overall gamma, gain, and lift settings of the red, green, and blue channels separately
- Gamma, gain, and lift balance settings

## To modify gamma, gain, and lift:

- 1 Enable Grade and then do one of the following:
  - Enable InPr to modify the input primary values.
  - Enable OutPr to modify the input primary values.



- 2 Use the following controls to perform primary colour grading.

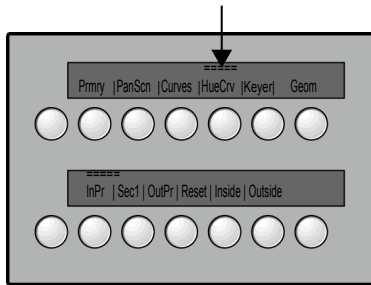


# Modifying the Hue, Saturation, and Lightness Curves

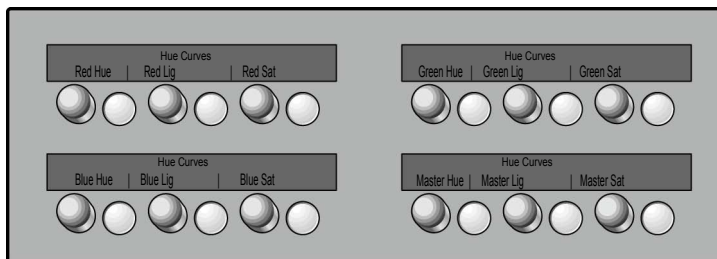
You can modify the hue, saturation, and lightness curves that appear in the Curves menu. You can modify the entire curve uniformly or modify individual vertices for RGBCMY channels (red, green, blue, cyan, magenta, and yellow). You must toggle between controls that modify the position of the red, green, and blue vertices and those that modify the position of the cyan, magenta, and yellow vertices.

**To modify hue, saturation, and lightness curves:**

- 1 Enable HueCrv to access controls for the red, green, and blue vertices.



- 2 Use the following controls to modify the hue, saturation, and lightness curve at each displayed vertex.



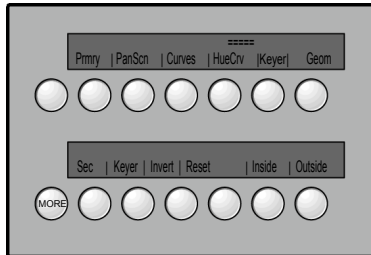
- 3 Press HueCrv again to access controls for the cyan, magenta, and yellow vertices, and then modify the curves.

# Secondary Colour Grading

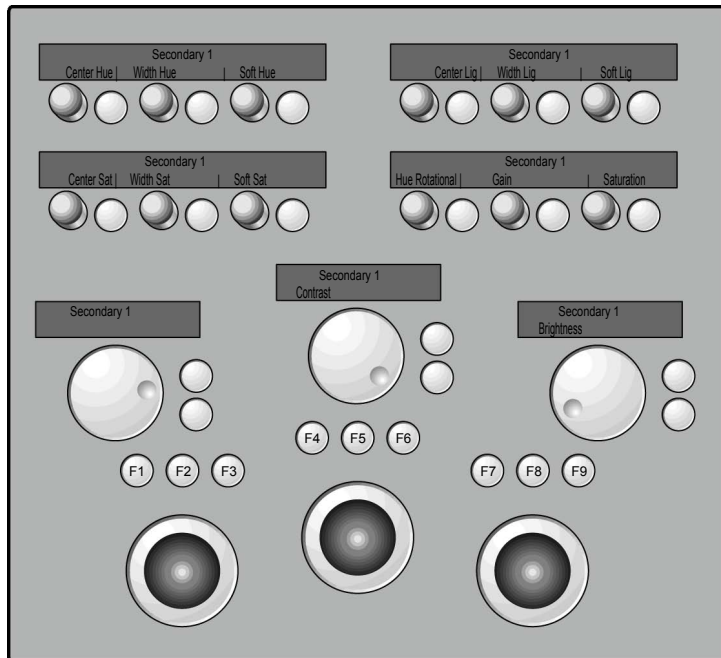
You can colour grade up to eight secondaries from the control surface.

To access a secondary:

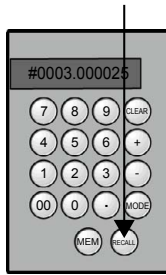
- 1 Enable Keyer.



The secondary controls for the first secondary appear. Once you enable and key a secondary, you can modify hue, gain, and saturation. You can also modify the brightness and contrast of the current secondary.



- 2 On the right side of the control surface, press Recall and then press a number between one and eight to go to that secondary. You can also press Select to toggle through the eight secondaries.

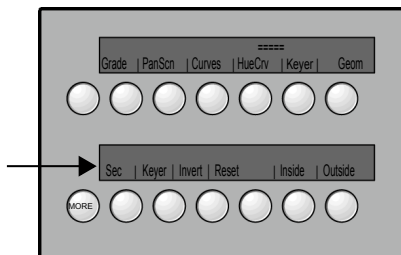


## Applying Secondaries to the Shot

Use the second row of buttons on the left side of the control surface to set basic parameters for secondaries.

Press:	To:
Sec	Switch on and off the current secondary.
Keyer	Switch on and off the Keyer for the current secondary.
Invert	Invert the key for the current secondary.
Reset	Reset the key for the current secondary.

Enable the Sec button to apply the displayed secondary to the shot.



# Creating Keys

Enable the Keyer button and then use the controls in the centre of the control surface to create a key.

## To create a key:

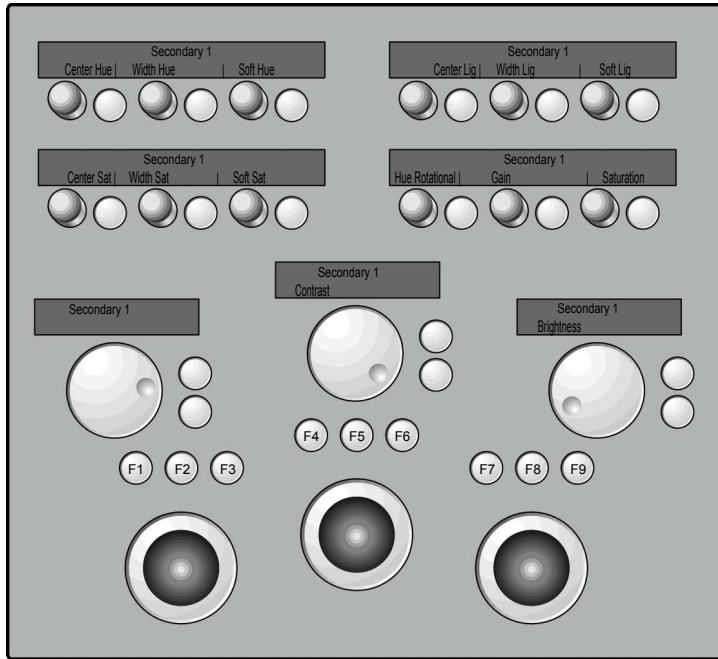
- 1 Enable Keyer in the upper control surface menu, and then enable Keyer in the lower menu.
- 2 To sample initial softness and tolerance, press F1 on the control surface and then use the left trackball to position the colour picker over the image. Press F1 again to sample the image.

---

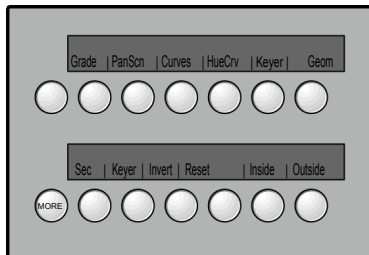
**NOTE** Sampling from the control surface works slightly differently than sampling from the ACS user interface. When you sample from the control surface, the value and saturation channels are set to the maximum softness. When you sample from the user interface, the value and saturation channels are not set to maximum values.

---

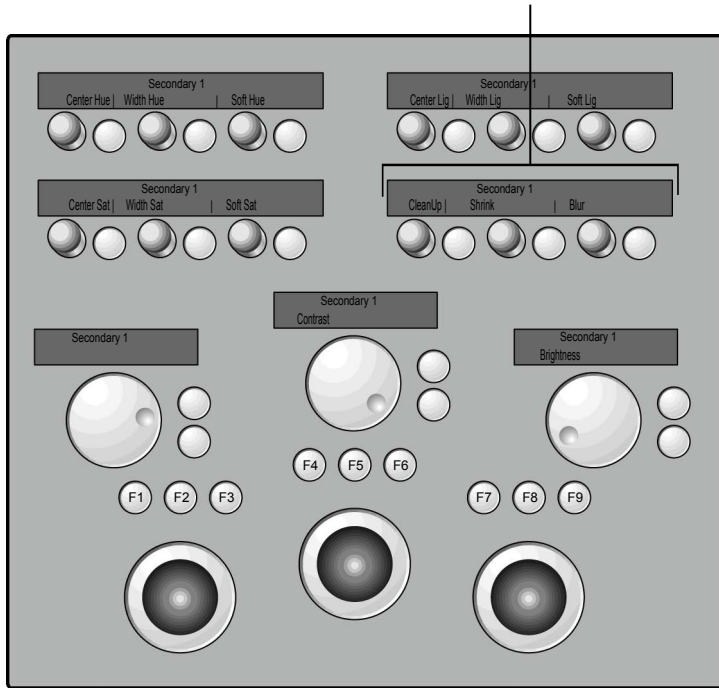
- 3 Set the hue, brightness/gain, and saturation levels for the key. Each value is modified according to the original sample—you can adjust the centre tolerance value, as well as the softness and tolerance ranges.



- 4 Press More (upper left) to shrink, blur, or clean up the edges of the key.



The Cleanup, Shrink, and Blur controls appear.

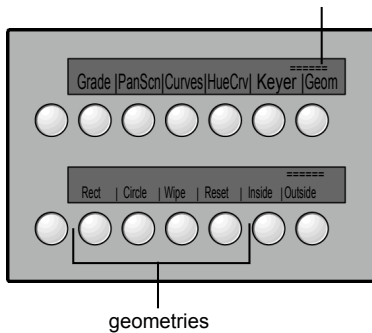


## Creating Geometries

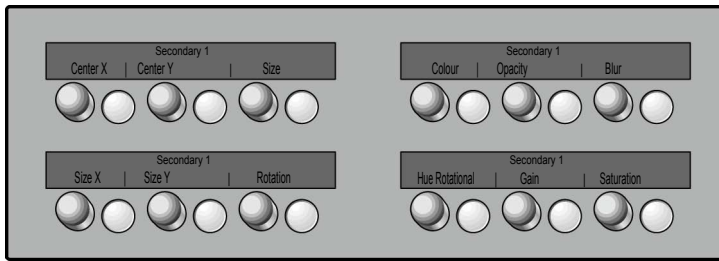
You can create and apply basic and free-form geometries to each secondary.

**To create a geometry:**

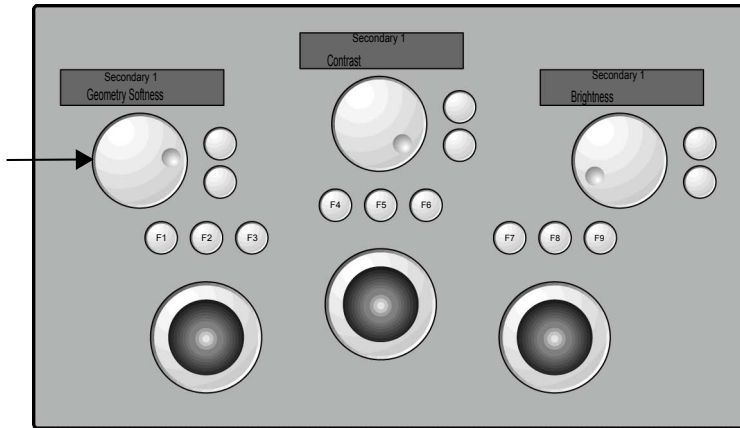
- 1 Enable Geom and then select the shape from the second row.



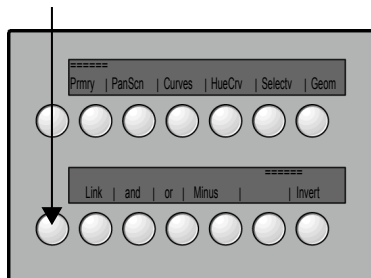
- Use the controls in the centre of the control surface to modify the shape of the geometry, as well as its colour, opacity, and position on the image. You can also apply a blur.



- To set softness, use the Geometry Softness dial.



- To apply logical operations to the geometry, or invert the geometry, press the More button associated with the second row on the left.

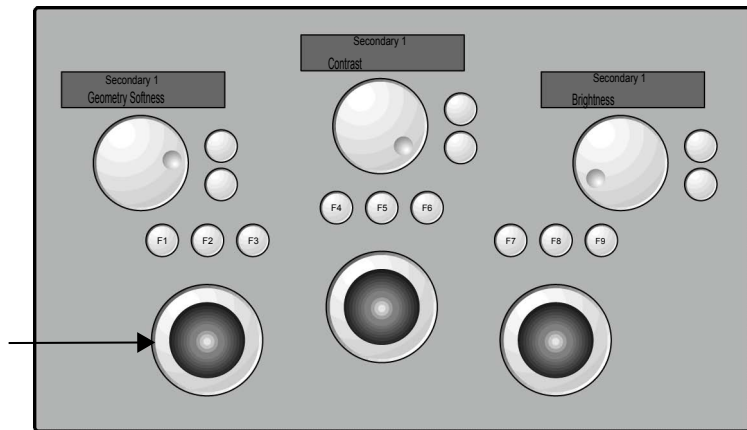


# Moving Geometries

You can move geometries from the control surface.

## To move a geometry:

- 1 To select a geometry, press F1 on the control surface and then use the left trackball to position the cursor over the geometry. Press F1 again to select it. Alternatively, press F2 and F3 to move back and forth through the geometries (listed in the Axes list).
- 2 Use the left trackball to move the geometry.





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