

BCC Flicker Fixer

Filter Category: BCC Image Restoration

Filter Description:

BCC Flicker Fixer is a filter for eliminating flicker from source footage. It provides 3 different methods for removing flicker. The **Frame Analysis** method is intended for use with clips with flicker that is uniform throughout the frame – e.g. flicker that is caused by unintended shutter speed or aperture variations from frame to frame. The two **Temporal Smoothing** methods are intended for use with clips in which the flicker varies from pixel to pixel within the frame – e.g. a scene that is lit partly by natural light and partly by a flickering artificial light.



Helpful hints on using this filter:

The **Frame Analysis** method always analyzes the whole frame, and is not suitable for clips where the flicker is limited to a small part of each frame. If most of the frame is flickering and a small part is not, the Frame Analysis method will generally remove most (but not all) of the flicker, but is likely to add flicker to the

non-flickering part of the clip. You can use the Mask and key controls to isolate the non-flickering part of the clip and prevent this flicker from being added.

The **Temporal Smoothing** method processes each pixel independently. If part of the image is flickering and part is not, you can usually get good results by processing the whole clip. The filter will produce some softening (since it works by smoothing) in the non-flickering part of the image, and you cause the Matte controls to isolate this region and prevent any image softening.

Parameter descriptions:

Preset Load/Save mechanism group: The preset load / save mechanism is located at the top of every filter in Boris Continuum.

Use the preset load save mechanism to load the factory installed or user generated animated and / or static presets for this filter or to save the current setting as a new animated or static preset.

Compare Group: Contains controls that are used to compare the unfiltered source input with the filtered result.

Compare Mode pop-up: Used to enable or disable the compare mode function.

Off: The filtered output is displayed in the composite window, bypassing the compare mode controls.

Side by Side: Splits the composite window in half along the horizontal axis. The output to each half is dependent on the selection in the Compare Type pop-up.

Compare Type: Used to control the output to the composite window when in side by side mode and includes the following options.

Source - Effect: The unfiltered source input is on the left; the filtered source is on the right.

Inside - Outside Correction: The result of the inside color correction set-up is on the left; the result of the outside color correction set-up is on the right.

Slide parameter: Used to slide the image along the horizontal axis.

Right Offset parameter: Used to offset the image on the right side of the split screen.

Compare: Splits the composite window horizontally with a draggable wipe bar. The output to each half is dependent on the selection in the Compare Type pop-up.

Compare Type: Controls the output to the composite window when in compare mode and includes the following options.

Source - Effect: The unfiltered source input is to the left of the wipe bar; the filtered source is on the right.

Inside - Outside Correction: The result of the inside color correction is to the left of the wipe bar; the result of the outside color correction is on the right.

Wipe parameter: Used to reposition the wipe bar in the composite window.

Compare with Below: Splits the composite window horizontally with a draggable wipe bar. The layer below the filtered layer is displayed to the left of the wipe bar; the filtered layer is on the right.

Wipe parameter: Used to reposition the wipe bar in the composite window.

Compare with Layer: Splits the composite window horizontally with a draggable wipe bar. A user-selected layer from the timeline is displayed to the left of the wipe bar; the filtered layer is on the right.

Host Layer pop-up: Used to select the layer that is displayed when in compare with layer mode.

Method popup: This control sets the method used by the filter to remove flicker. There are three options:

Frame Analysis analyzes the color range of each frame, and adjusts each pixel based on the difference between the RGB color range of the current frame and the average range of the surrounding frames. This generally works well if the flicker is uniform over the whole image.

Temporal Smooth RGB and **Temporal Smooth YCC** compute a weighted average of each pixel with the same pixel at surrounding frames. The filter assess that the flicker is producing small frame-to-frame changes in color, so pixels that are close in color to the pixel in the current frame get more weight than pixels that are further away in color. This causes small changes caused by flicker to be averaged out, while large changes caused by action are left alone. The averaging can be done in either RGB or YCC color space. RGB is faster, and the results are pretty similar, so we suggest you start with RGB. In some cases you may get better results in YCC, especially if only the Y is flickering.

We recommend rendering the filter in 16 bit or float, especially if the Temporal Smooth YCC method is used.

Frame Analysis group: These controls are active when the Frame Analysis method is selected.

Time Window: This is the number of frames considered by the filter during flicker removal analysis. You may need to increase this for slow flicker, and may be able to save a little render time by reducing this for fast flicker. Increasing the value in this parameter increases render time.

Time Window Cutoff: This controls how far the analysis extends along the clip. Increasing the value in this parameter increases render time.

Faster Analysis: You can achieve some speedup of the analysis by checking this control, and it has little discernible effect on the render quality.

Smoothing: Increase the value in this parameter if the image flicker is very rapid. Increasing the value in this parameter increases render time.

Reset Cache button: You can usually ignore this button, but you need to hit it whenever you make a change to the layer to which the filter is applied.

You **do not** need to hit this button if you slide the effect in the timeline, or change any filter applied after Flicker Fixer.

Limit Sampling button: Flicker can sometime be apparent in only a portion of the image – use this button to instruct the filter to limit image analysis to the region encompassed by the top left and bottom right sampling box.

Sampling Top-Left / Bot-Right: Used to set the region sample box.

View: Used to set the filter output and includes the following four options:

Output – displays the filtered result

Transform Over Output – displays flicker curve over the filtered result

Transform Over Input – displays the flicker curve over the input clip

Transform Over Black – displays the flicker curve over black

Temporal Smoothing group: These controls are active when one of the Temporal Smoothing methods is selected.

Smoothing: The amount of smoothing, in frames. Increasing this beyond 2 or 3 times the Max Frames setting will have little effect.

Color Range: This is a master control that scales the range for the 3 color channels.

For each channel, the color range determines which pixels at neighboring frames are considered flickering versions of the current pixel.

Max Frames: The maximum number of frames that the filter will look at on each side of the current frame. Increasing this value increases render time.

Red, Green, Blue, Y, Cb, Cr Range : Each of these (scaled by the Color Range) sets the range for the specific channel as described under Color Range. Only the 3 that are relevant to the current method setting are active. Note that Cb and Cr ranges default to their minimum value, since we expect most of the flicker to be in Y.

Smooth By Fields checkbox: This setting affects final render in fielded projects. Turning it on causes the smoothing to include each surrounding field instead of each frame. Enabling this option increases render time and adds some image softening, but can be necessary if the flicker is very rapid.

Mix With Original: Use to blend the filtered result with the original unfiltered input clip.

Matte group: Use the controls in this group to create a static or animated matte, which is then used to limit the flicker removal to the selected areas of the image.

The generated matte can be any combination of masked regions created via the built-in mask tools within the filter (or in After Effects from any layer mask) along with pixels, which have selected via the key group by the user from the input image.

Render mode pop-up: This popup interacts with the **Mask** and **Key** controls and determines the rendered output of the filter. The Mask and Key controls can be used to create a matte that separates the image into **Inside** and **Outside** pixels.. The following options are available in this pop-up:

Render with Matte: Uses the inside settings to render pixels inside the matte (pixels that are both inside the mask and keyed in), and the outside settings to render pixels that are outside the matte.

Render Inside Matte Only: Uses the inside settings to render pixels inside the matte, and leaves pixels outside the matte unchanged.

Render Outside Matte Only: Uses the outside settings to render pixels outside the matte, and leaves pixels inside the matte unchanged.

Use Inside Correction: The matte is ignored, and the inside correction is applied to the entire image.

Use Outside Correction: The matte is ignored, and the outside correction is applied to the entire image.

View Matte: The Matte is rendered as a black and white image.

Mask Inside Pixels: The source is rendered with a ruby mask over the pixels that are inside the matte.

Mask Outside Pixels: The source is rendered with a ruby mask over the pixels that are outside the matte.

Make Alpha from Matte: Makes an alpha channel from the matte. This is composited with the image's original alpha channel.

Make Alpha from Inverse Matte: Makes an alpha channel from the inverted matte. This is composited with the image's original alpha channel.

Show Source: Displays the unfiltered and unmasked original input clip.

Matte Preview Color picker: Used to set the color of the mask overlay

Mask Shape pop-up: Used to select the shape of the mask that is used to contain the inside and outside color correction. On-screen control widgets have been provided for the Rectangle, Rounded Rectangle and Egg Shape masks. The available on-screen controls for these mask shapes enable you to modify the position and scale of the mask as well as the feather amount, and feather bias. For the Egg Shape mask, an additional on-screen widget enables you to control the egg shape without taking your eyes off the image.

Off: No mask is used and only the Inside Color Correction parameters will affect the image result.

Rectangle: Generates a rectangular mask

Rounded Rectangle: Generates a rectangular mask

Egg Shape: Generates an egg shape mask (good for human faces)

Host Layer: Uses luma or alpha values from a user selected source clip

Mask group: Contains parameters pertaining to the mask that is used to separate the inside and outside color grade.

Host Layer pop-up: Displays a list all of the available layers in the host timeline.

Host Channel pop-up: used to select the host layer luma or alpha channel or their inverts.

Luma: Uses the selected host layer Luma channel.

Alpha: Uses the selected host layer Alpha channel.

Luma Inv: Uses the selected host layer Inverted Luma channel.

Alpha Inv: Uses the selected host layer Inverted Alpha channel.

Host Mask pop-up: Displays a list of available host generated closed spline mask shapes.

Host Mask Offset: Used to offset the position of the selected host mask shape.

Point 1: Used to control the position of the top of the mask shape.

Point 2: Used to control the position of the bottom of the mask shape.

Width: Used to control the width of the mask shape.

Scale: Used to transform scale the mask shape.

Egg Shape: Used to control the mask egg shape. Negative values produce a downward pointing egg shape, positive values produce an upward pointing egg shape.

Feather: Used to control the softness (feather) of the mask edge.

Feather Bias: Used to position the feather inside or outside of the mask shape bounds.

Mask Gamma: Used to adjust the falloff of the mask feathering.

Invert: Used to invert the mask.

Enable Overlays checkbox: Used to enable or disable the drawing of the on-screen control widgets.

Key Mode pop-up: Controls the state of the key matte function.

Off: Key matte function is disabled.

On: Enables the key matte function.

Invert: inverts the generated key matte.

Mask Key Combine pop-up: contains options for combining the mask shape and the key matte.

Multiply: Multiplies the key matte with the mask shape (removes pixels from the mask).

Screen: Screens the key matte over the mask shape (adds pixels to the mask).

Key Group: Contains parameters that are used in the generation of key mattes to isolate secondary colors for color adjustment.

Base Key On pop-up: Used to set the color space in which the keying is done.

HSV: Hue, Saturation, Luminance.

HSL: Hue, Saturation, Value.

HIS: Hue, Saturation, Interpreted.

HSP: Hue, Saturation, Perceptual.

Hint: Setting the Base Key On pop-up to HSP provides the greatest tonal range of all the available options but it less bright than the HSL default.

Key Softness pop-up: Controls how the softness controls interact with the key.

Expand Key: Increasing the softness controls expand the key when this is selected.

Contract Key: Increasing the softness controls contract the key when this is selected

Soften Key: Increasing the softness controls softens the key when this is selected.

Key Color swatch and eyedropper: Used to select a color from the image that will be matched in the selected color space.

Note: If you choose a pure grey no hue matching will be done.

Hue Threshold: Used to control how close each pixels hue value needs to be to the selected Key Color to be treated as within the key.

Hue Softness: Used to soften the key in the hue channel.

Sat. Threshold: Used to control how close each pixels saturation value needs to be to the selected Key Color to be treated as within the key.

Sat. Softness: Used to soften the key in the saturation channel.

Lightness Threshold: Used to control how close each pixels lightness value needs to be to the selected Key Color to be treated as within the key.

Lightness Softness: Used to soften the key in the lightness channel.

Blur Key: Used to apply a blur to the key.

Note: Use the Blur Key function with caution – it adds about 50 percent to the render time.

Motion Tracker: This filter has two motion trackers, one each for controlling the two points that determine the shape of the mask. For detailed notes on use of the BCC Motion Tracker, please click on the help button at the top of the motion tracker parameter group. The trackers in this filter have some additional controls:

Apply has three choices.

Off: ignores the tracker data

Mask Points: applies each tracker to the corresponding mask points

Host Mask Offset: applies data from Tracker 1 to the host mask.

Lock Tracker 1 and 2: lock each tracker. If you have successfully tracked one point, and are still working on the other, you can lock the completed tracker to save time and avoid changing its data.

Each tracker has a group for controls that can be set independently for the trackers. You would normally set tracker 1 to the point at the start of your clip where you want Point 1 of the mask to be, and tracker 2 where you want Point 2. You would then track and set Apply to Mask Points

There will be times when the points that you are able to track do not correspond to the end points of the desired mask. There are two ways that you can deal with this. You can attempt to adjust the mask controls (e.g. Feather, Feather Bias, and Scale) to find settings that produce the desired result, or you can edit the Offset X and Offset Y controls for each point to offset the Mask Points from the tracked result. These offset controls can be animated if needed.