

L e e m i n g L U T P R O

Camera Setup Guide:	Blackmagic Pocket 4K / 6K
Based On:	Blackmagic 6K (firmware 6.9)
Target Colour Space:	Rec709 gamma 2.4
Target Exposure:	ETTR
LUT Version:	Pro II & Athena
LUT Release Date:	2020.04.17
Guide Version:	2020.07.16

INTRODUCTION

Thank you for purchasing Leeming LUT Pro™, the most accurate and professional Look Up Tables (LUTs) for your camera.

The LUTs have been carefully developed to get the maximum dynamic range and colour accuracy out of the supported profiles, giving you unparalleled Rec709 precision as well as perfect camera matching with other supported cameras in the Leeming LUT Pro™ range. Use them in conjunction with ETTR shooting principles and you will get the highest possible quality images out of the camera every time.

I am confident you will find these the most accurate LUTs for your camera. Anything less and I wouldn't have put my name on them!

Enjoy :)

Paul Leeming
Director / Writer / Cinematographer / Actor
Visceral Psyche Films
www.visceralpsyche.com

LICENCE

You are granted a personal licence to use Leeming LUT Pro™ on two computers. For use with more computers, please contact Visceral Psyche Films for bulk discount pricing. You may not upload the LUTs anywhere, share them with other people or incorporate them into other LUTs for derivative use (i.e. making creative LUTs using Leeming LUT Pro™ as the underlying base), whether they be for sale or not. Please respect the work that has gone into the LUTs and support those supporting you.

COMPATIBILITY

Leeming LUT Pro™ is compatible with any software or hardware device that supports a 33x33x33 cube LUT. For a full list, please see the website.

REQUIREMENTS

1. Blackmagic Pocket 4K / 6K camera.
2. Spectrally neutral white or grey card, for white balancing the camera (eg. the white balance side of an X-Rite Colorchecker Passport is designed for this).
3. Leeming LUT Pro™ for the Blackmagic Pocket 4K / 6K.

NOTE: Items highlighted in yellow have an adverse effect on LUT accuracy if changed away from the recommended values in this guide.

QUICK REFERENCE OF IMPORTANT CAMERA SETTINGS

The settings below are recommended for the LUTs to work properly, in conjunction with an accurate white balance and using the ETTR zebras to show where the highlights of an image are clipping.

If you deviate from **these settings**, your colorimetry and luma curves won't match precisely to Rec709 and you may get other errors in your footage. You can find the details of how to set these in the next section.

	Film
Zebras (ETTR)	100%
Zebras (18% grey)	-
Zebras (skin tone)	-
Dynamic Range	Film

FULL CAMERA SETUP GUIDE

Based on the camera listed on the title page of this guide. Your camera may not have all the same features so adjust as necessary.

1. Press the Menu button.
2. Record tab page 1 – Select your preferred codec, compression and resolution depending on your attached media capabilities and project requirements. I recommend Blackmagic RAW, Q0 for critical work when recording to SSD via USB-C or CFast, and Q5 for SD card recording and general work (make sure your SD card is 100MB/s minimum).
3. Record tab page 2 – **Set Dynamic Range to Film** for the LUT to work properly, then choose your project frame rate and other settings as desired.
4. Record tab page 3 – Set Detail Sharpening OFF (greyed out when recording RAW) and **Apply LUT In File / Record LUT To Clip OFF (if you set this to ON you will bake the LUT into the recording)**.
5. Monitor tab LCD page – Set Zebra and Grid ON, and the other settings as desired. Select the second LCD sub-page with the right arrow, then set Status Text to ON and Display as desired (I normally set Codec and Resolution).
6. Monitor tab HDMI page – Select HDMI and set Clean Feed unless you want to see your camera menus on your external monitor. Set Display 3D LUT as desired, but if you are recording your image, I recommend setting this to OFF to avoid baking in the LUT. Select the second HDMI sub-page with the right arrow, then set Display Status Text For as desired (I recommend Cinematographer).
7. Monitor tab BOTH page – Set Zebra Levels to 100%, then set Focus Assist to Colored Lines, Level HIGH, Focus Color as desired. You can set your Frame Guides as required for your project. Select the second HDMI sub-page with the right arrow, then set your Grids and 1.33x Anamorphic Desqueeze as needed.
8. Audio tab page 1 and 2 – set your inputs and levels as required on both pages.
9. Setup tab page 1 – Set your date and time, then set Shutter Measurement to Shutter Angle and Flicker Free Shutter to your local power frequency standard.
10. Setup tab page 2 – You can choose your own functions but I set all to toggle, Function F1 to Display LUT, F2 to Focus Assist, and F3 to Frame Guides. Choose where each displays.

11. Setup tab page 3 and 4 – Set Tally Light LED to OFF, LED Brightness to Low, and Playback to All Clips. Set Bluetooth as desired.
12. Setup tab page 5 – Here you can reset your camera, remap pixels (gets rid of hot pixels), and calibrate your motion sensor.
13. Presets tab page 1 – You can save your camera presets here using the + button and save them to your media for easy copying to another camera.
14. LUTs tab page 1 and 2 – First copy the two Leeming LUT Pro cube files (Pro II and Athena for the appropriate camera) you received in your email to your media card in the root directory of the card (don't copy the folders), then insert it into the camera. Press the two arrows button, Import LUT, then press Import. Choose the card your LUT is on, then select the LUT you want to install from the list so it is highlighted in blue, then Import.
15. Once the import is finished you will see it appear in the list. Select it, then press the tick button at the bottom of the screen to set it active. The active LUT has a blue line underneath. Repeat the procedure for the other LUT if desired.
16. Press the menu button to exit the menus.
17. With the main screen active, tap on the timecode to toggle between Record timecode and time of day. Tap on the Battery icon to switch between Voltage (recommended) or percentage/bars.
18. To white balance your shot, place your grey or white balance card in front of the camera, focus on it and ETTR until just below the zebras, then press the WB button on the grip area, or tap on the WB area on screen, and select AWB. Ensure that the target square is completely within the grey or white card, then press Update WB. Your camera will now be neutrally balanced.
19. Use Function 1 to toggle the LUT on or off, Function 2 to toggle Focus Assist on or off, and Function 3 to toggle your frame guides on or off. The HFR button can be used to quickly toggle between normal project framerate and your chosen high speed framerate and resolution. Use the Magnify button to zoom in 1:1 for focus checking.

You are now ready to use Leeming LUT Pro™ with the maximum picture quality available. Be sure to visit the website to read up on how to use ETTR (Expose To The Right) principles to get the most dynamic range out of your sensor, as well as the associated Leeming LUT Pro™ LUT Installation Manual on how to apply the LUTs to your footage in post-production:

www.LeemingLUTPro.com

HARDWARE / SOFTWARE QUIRKS AND BUGS

1. Version 6.9 of the Blackmagic Pocket 4K / 6K firmware still has a bug whereby the zebras in ProRes do not accurately show the highlight clipping at non-base ISOs, so for now, **if shooting ProRes, I recommend shooting at the base ISOs of 400 or 4000 (3200 will stop at 98%) only to ensure accurate zebras.** Blackmagic RAW shooting will correctly show clipping so all ISOs are usable in that mode. In post when shooting Blackmagic RAW, you can use Highlight Recovery to pull back some clipped values if shooting at other ISOs than the two base ISOs.
2. Using the LUT with the Atomos Ninja V (even with firmware 10.3+) seems to give incorrect, lower levels than actually recorded, so I would recommend viewing on an external monitor without the LUT applied until this can be fixed. Nevertheless, the Ninja V settings are provided below in case you still want to use it as a rough guide.

ATOMOS NINJA V RECORDER SETUP

The LUTs are compatible with external monitors and recorders which use the 33x33x33 cube format.

One issue which arises with using the camera's HDMI output is that it sometimes feeds the wrong levels the device is expecting. Using the Atomos Ninja V (with firmware 10.3+) as a guide, set the Legalize function as per the table below to correct this. **Make sure you DON'T have a viewing LUT active when setting this up, otherwise your Legalize setting will be greyed out and unavailable to change.** To ensure your externally recorded clips match both on screen and in post, **have the Athena LUTs applied and active in the Ninja V.**

	Film
Zebras LUT On (ETTR)	90%
Zebras LUT Off (ETTR)	100%
Zebras(18% grey)	(not possible to set)
Log/HDR	OFF
Camera	Standard
Gamma	Rec709
Gamut	Rec709
HDR Auto	OFF
Legalize	OFF
HDMI Trigger	ON
Timecode	HDMI Timecode

DAVINCI RESOLVE CLIP ATTRIBUTES FOR ATOMOS NINJA V FOOTAGE

When importing Atomos clips into Davinci Resolve for the Blackmagic cameras, you do not need to adjust any Clip Attributes, as the footage imports correctly by default.

	Film
Data Levels	Auto (default)

GUIDE CHANGELOG

- 2020.07.16 Added note about not having a viewing LUT active in the Atomos when selecting Legalize options.
- 2020.04.17 Fixed a small bug in both LUTs.
- 2020.04.11 Initial release.