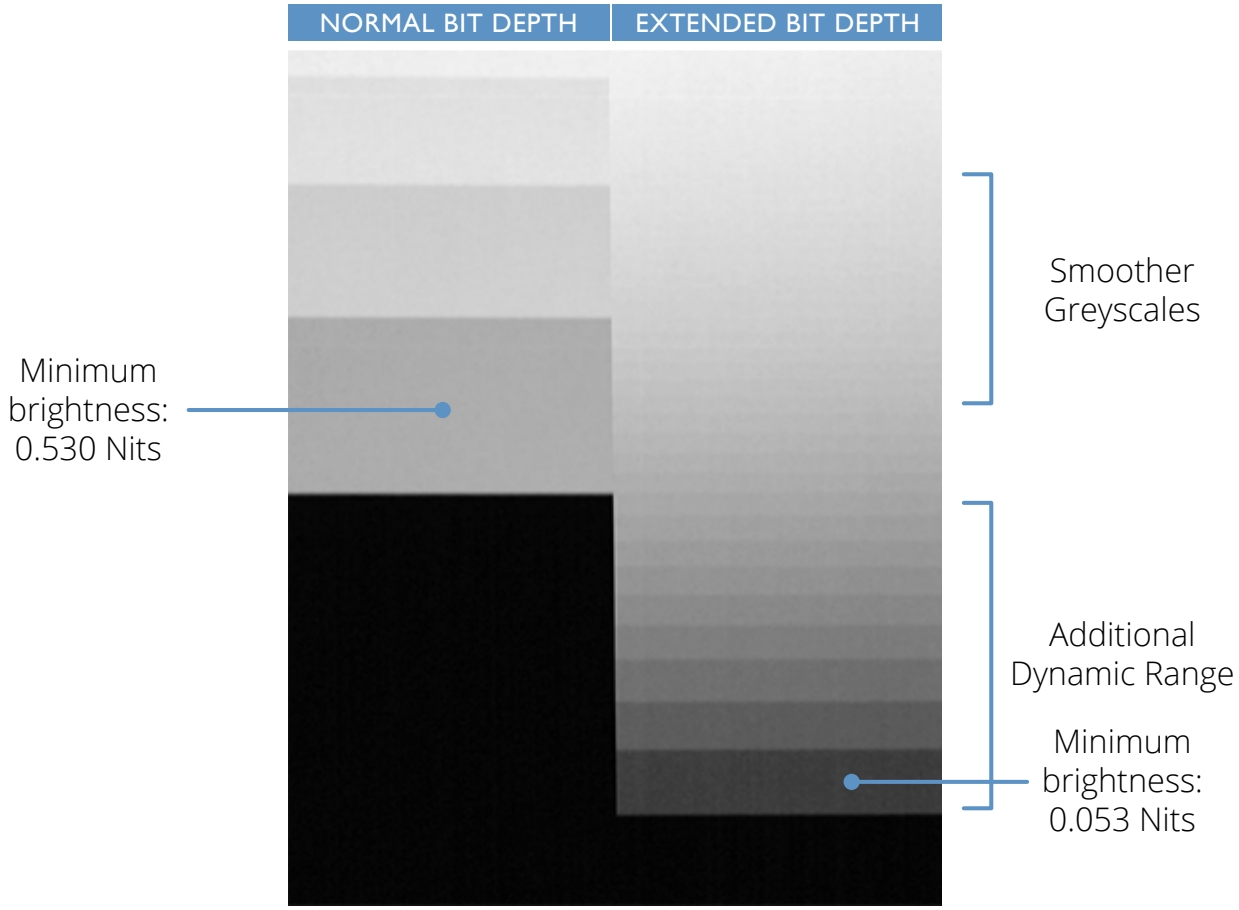
Feature Spotlight

EXTENDED BIT DEPTH

Upgrade your image quality.

Discover new levels of dynamic range with Extended Bit Depth from Brompton Technology – a feature that unlocks higher PWM bit depth output with a free firmware update. Up to 3.3 additional bits of precision improve low-brightness performance – reducing visual artefacts and bringing out additional detail and nuance in dark areas of the image. This substantial increase in dynamic range will be invaluable when reproducing HDR content or working with LED on-camera.



Performance at 0.05% brightness with Dark Magic disabled, illustrating PWM bit depth improvement: Frame grab from camera footage of 2000 Nits panels running at just 1 Nit.

© 2025 Brompton Technology Ltd, 272 Gunnersbury Avenue, Chiswick, London W4 5QB | www.bromptontech.com

It is not often you get something for nothing, but now you can benefit from higher PWM bit depth output thanks to a free firmware update. Extended Bit Depth is available for all existing and new panels containing the Brompton receiver cards.

It enables reproduction of HDR content up to 10 times darker than previously possible, all achieved without compromising peak brightness for HDR highlights. Extended Bit Depth typically offers two to three stops of additional dynamic range on camera and can be used in conjunction with our Dark Magic and ShutterSync® features.

Unlock Higher Bit Depths

With Extended Bit Depth you can unlock up to 3.3 additional bits of precision depending on panel capabilities, the video frame rate and camera shutter angle being used.

For example, a panel running at 24 fps with a camera shutter angle of 180° might offer an additional 2.3 bits of PWM precision, giving five times the number of achievable brightness levels at the low end, with 125 times the number of achievable colours.

Achieve Peak Image Quality

The benefits of Extended Bit Depth are most obvious at low and ultra-low brightness levels – it brings out additional detail and nuances in dark areas of the image while also reducing visual artefacts.

In comparison with panels not using the feature, panels with Extended Bit Depth enabled are noticeably smoother and show more detail.

NORMAL BIT DEPTH EXTENDED BIT DEPTH

Performance at 1% brightness: Camera footage of 2000 Nits panels running at just 20 Nits.

Get More From Your Hdr Content

With Extended Bit Depth, you can reproduce HDR content up to 10 times darker than previously possible.

When configured for use on camera with a shutter angle of 180°, calibrated measurements confirm that a typical 2160 Nits panel using Extended Bit Depth and Dark Magic can render brightness levels as low as 0.00024 Nits – a mere 0.000011% of the peak brightness.

Extended Bit Depth does not reduce the peak brightness of the panel, thus HDR highlights can still be displayed to their full potential, resulting in a contrast ratio of over 9,000,000 : 1 and over 23 stops of dynamic range.

- ✓ Reproduces HDR content up to 10 times darker than previously possible, without compromising peak brightness for HDR highlights
- ✓ Offers two to three stops of additional dynamic range on camera
- ✓ Fully compatible with our Dark Magic and ShutterSync® features

© 2025 Brompton Technology Ltd, 272 Gunnersbury Avenue, Chiswick, London W4 5QB | www.bromptontech.com

Use With Shuttersync® For More Light And Detail

Extended Bit Depth is fully compatible with ShutterSync® and typically offers two to three stops of additional dynamic range on camera, a massive advantage when filming an LED screen displaying dark, shadowy content.

The additional range can also be used to achieve brighter, more realistic lighting, because the camera exposure can be increased substantially when using Extended Bit Depth, making the panels, and any lighting from them, appear much brighter on camera.

Brompton Technology is the market leader in LED video processing for the most demanding applications across live events, virtual production, broadcast/XR, simulation/VR, fine-pitch installations and esports. The company has won multiple awards and become a globally respected brand, known for the quality and reliability of its products and exceptional technical support. For more information, visit www.bromptontech.com.