

# Making light work

High-end cinematography requires powerful lighting, but it must be sustainable. Our panel of experts share some of their best advice

**INTERVIEW.** Robert Shepherd



**BRANDON LE**  
Senior product marketing manager  
Aputure



**NILS DE MONTGRAND**  
Vice president LED products & engineering  
Rosco



**TIM DUFF**  
Director of North America  
Creamsource



**JAVIER VALDERRAMA**  
CEO and co-founder  
Velvet

**What role are you playing in the production of energy-efficient lighting?**

**BRANDON LE:** LED technology has been available for years, and as a lighting company, LEDs are the only technology Aputure has ever used. We started out with the goal of optimising LED technology to make high-quality, affordable lighting available to filmmakers and creators of all levels. With the rapid growth of the technology, they are no longer just a source of energy-efficient lighting, but natively capable of a plethora of features that enhance the workflows of our users, from wireless app control, colour tuning, weather-resistance and easy modifiability. The field is growing at a rapid pace, and we are making an effort to lead the charge.

**NILS DE MONTGRAND:** Rosco DMG Lighting has fully embraced LED technology for its versatility in colour reproduction, longevity, consistency – and of course, its lower power consumption compared to traditional lighting products.

**TIM DUFF:** Creamsource has been at the forefront of LED technology, introducing the first RGB space light to hit the market, and now delivering a wide-ranging product portfolio for filmmakers to have in their arsenal. Dedicated to driving innovation, Creamsource offers high-

quality, energy-efficient fixtures such as the groundbreaking Vortex, a series of waterproof, hard panel LED lights.

**JAVIER VALDERRAMA:** Velvet proposes and develops innovative technologies to produce more energy-efficient luminaries, to give more creative possibilities and to speed up the lighting set-up and adjustment process. Designed with lightweight equipment to facilitate the work of technicians, without fans so there are no problems with direct sound – and battery powered while still giving 100% light intensity.

LED technology uses up to 90% less energy than traditional bulbs. Our flagship fixture – the Velvet Kosmos – is a new-generation fresnel colour light, with true glass and advanced features such as motorised zoom. Kosmos needs five times less energy to give the same intensity as an equal tungsten light.

All fixtures in the Velvet portfolio are highly efficient lights in which





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Compact & lightweight: 9.3kg / 20.5lbs  
Integrated in VELVET Goya free app  
Full output even with batteries

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sustainability, low energy consumption, connectivity and the absence of fans have been part of our DNA since inception.

**Which lights are the most sustainable and are they as good as the older and more power-hungry ones?**

**BL:** All of our LEDs have incredibly long lifespans, with most of our units – from the Amaran T2c to the LS 600c Pro – having estimated lifetimes (L70) of 50,000 hours or more. So like all mechanical structures, they do age and accumulate wear and tear, LEDs will typically last significantly longer than the equivalent incandescent or gas-discharge sources – which will burn out and shift in colour more quickly.

**NM:** While all of our DMG Lighting fixtures are equally sustainable, the fixture that stands out most to me is the triple DMG Maxi. This is three DMG Maxi units combined together on a Triple Maxi Yoke. Anecdotally, we have heard that gaffers have been successfully using the Triple Maxi in place of a 12K HMI with diffusion. The comparison of a maximum output of the Triple Maxi’s 1080W versus 12,000W heavily impacts sustainability.

**TD:** LED lights are inherently more sustainable than previous, more conventional lighting options. Using Creamsource’s Vortex fixtures as a prime example, the weather proofing, energy efficiency, reliability and tuning make these LEDs the perfect alternative to large HMIs. Vortex units are often leveraged in ways HMIs would typically be used, with the added benefit of needing fewer power generators on set. Beyond efficiency, the built-in FrameSync feature allows for strobe effects that sync directly with the camera’s shutter.

These effects simply wouldn’t be possible without ‘smarter’ lighting technology.

Artistically speaking, the comparison between LED technology and traditional lights becomes subjective, as the visual language of a project should dictate the tools chosen. There are countless feature films and episodic content that have utilised LED technology with great success, most notably *The Mandalorian* lensed by Greig Fraser, ASC, ACS.

**JV:** Since our foundation, Velvet follows a clear mission: Made to last. What it means is to design and produce durable lights that can be used for many years, in order to get maximum value from them.

At Velvet, we take care of industrial raw materials, especially packaging, using mainly recycled carton and the minimum possible recycled foam.

Velvet’s factory and offices’ electricity are supplied by a green energy provider.

Working closely with suppliers and collaborators, we generate a lower carbon footprint, minimising the environmental impact of manufacturing.

Sustainability is not a choice for Velvet. LED technology helps bring sustainability to our TV studios and film sets. Velvet is committed to protecting and preserving the environment; we enable our customers to do the same by designing our products to be easily repairable, updated and finally, recyclable.

**What technology do you supply that could help the gaffer power varied lighting in a remote location or secluded area?**

**BL:** Many of Aputure’s LED fixtures are ideal for lighting in remote locations, because of their ability to ‘hot strike’, as well as their lower power consumption and DC power operation. Unlike HMIs, which often produce power spikes when

turned on – causing strain on generators and taking additional time for the light to stabilise – LEDs can turn on instantly without those same issues. Additionally, LEDs can be operated using DC batteries, whether they are block batteries or V-Mount cinema batteries, instead of only with AC power from generators. This is ideal for shooters in remote locations, who need to pack smaller and lighter.

**NM:** DMG Lighting fixtures are all very conservative in their power consumption and are ideal for remote locations. The Dash’s internal battery runs for three hours at full intensity (15W) and the MINI (100W), SL1 (200W) and Maxi (360W) units can be battery operated without the necessity of a thermal generator, which the larger HMI/tungsten would need.

The DMG Lighting fixtures can be controlled through our myMix app via Bluetooth. This allows filmmakers to fully control the output, as well as the colour, the CCT and effects remotely. The fixtures are also RDM compatible, and therefore they can be controlled via wired DMX or wireless DMX using CRMX from LumenRadio and Arnet.

**TD:** Nearly all of the lights within the Creamsource portfolio are IP65 rated, which gives gaffers a key advantage when shooting remotely. The Vortex8, for example, can be taken to a secluded location outside of a studio environment and powered off a battery source, whereas tungsten counterparts or equivalents would not be able to.

**JV:** All our equipment can work on battery, and when they do, they give 100% output power.

Our well-known Velvet soft light panels or our Velvet Power – long-throw beam hard light panels, with capability to work outdoors, through windows, or on cranes, at full power even with standard batteries – define us.

Our latest contribution is without a doubt the most paradigmatic example; a fresnel light built with all the characteristics of tungsten light (and its

**“The LED is fully incorporated into all types of shooting scenarios, bringing countless advantages due to its versatility”**



beautiful shades) but with the efficient LED technology and all the wireless connectivity shooting needed in 2023; that also is enabled to be battery powered at 100% output.

The LED is fully incorporated into all types of shooting scenarios. It brings countless advantages in terms of versatility due to its wide range of attributes: colour temperature, dimming, precise tone adjustment, autonomous power supply, low consumption, lightness, wireless connectivity... These benefits are compelling arguments for being widely accepted as a new tool that the DP and the gaffer value very positively for their productions.

**Do you have a go-to light solution for filming in rooms full of windows, glass and chrome where glare is a problem?**

**BL:** Typically glare is just a result of the reflections of the lights on certain surfaces which happen to reflect directly back into the view of the camera. Bare point-source lights will produce the harshest glare because of their smaller aperture, which results in a sharper and smaller reflection. One way to mitigate this effect is to use softer sources, including a soft panel like a Nova P600c, or modify the light source with a softbox like a Light Dome on an LS 600d. This will increase the size of the reflection and make it less noticeable. To remove it completely, it will be important to adjust the angle of the light source and even add light control grids or barn doors to prevent lights from spilling onto the reflective surface in the first place.

**JV:** Our proposal for this type of location would be to work with equipment that allows lighting from outside. In this case our Velvet Power, with long-throw beam, allows to have a controlled beam and minimises glare.

Velvet Kosmos, our colour fresnel with motorised zoom, is a point source and its beam is much more controllable and allows a precise light cutting. Velvet Kosmos has a real glass lens and its COB is the same size as the filament of a 2K tungsten bulb. Therefore, its light and shadows are those of a classic tungsten but with the connectivity and advantages of an LED point source.

**NM:** Rosco has been a go-to manufacturer of lighting control products for decades. We offer several ND filters in different strengths to reduce the intensity of window light. We also offer RoscoView, a unique variable ND solution for windows that utilises polarising filter technology. A wide variety of diffusion filters are also available to reduce glare from reflective

surfaces, including skin. Our other top-performing light-control products include Blackwrap as well as our new E276 Blackout.

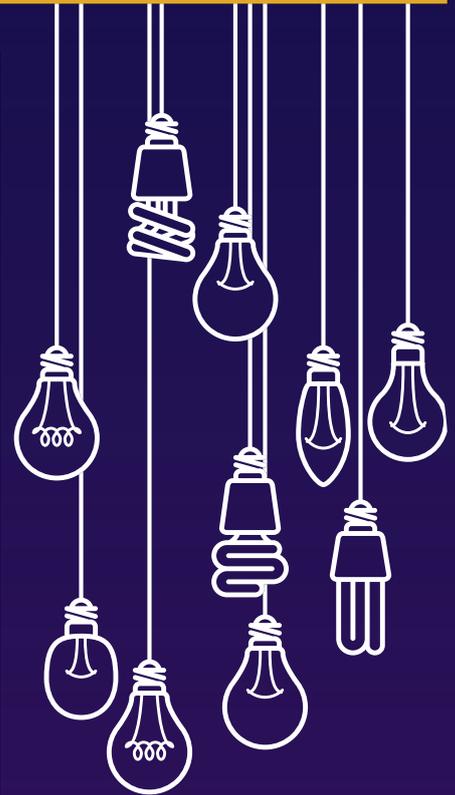
With regards to fixtures, when it comes to shooting in a room full of windows, the DMG lighting fixtures filmmakers have been relying on have been the DMG Maxi, Double and Triple Maxi for sheer output. These fixtures feature several beam-control accessories, including flat and dome diffusers, barn doors and both Snapgrid and Snapbag accessories from our partners at DoPchoice.

**How important is having a good reference monitor displaying the colour spectrum?**

**BL:** In combination with charts like vectorscopes and waveforms, a good reference monitor with these functions that can also display the widest colour gamut is always important, to visually verify the image that your camera is capturing. As a lighting manufacturer, our goal is to provide our users with the best spectral output possible on set, so our users can rest assured that the colour being captured by their cameras is as detailed and full as possible. The spectrum our lights are able to produce all originate from our deep investment in the research and development of our core LED technology.

**NM:** Colour fidelity at Rosco has always been incredibly important. It's essential to see the results of spectral gaps present on set, especially when lighting with LED units. The six-chip Mix technology inside our DMG lighting fixtures helps to fill in those gaps, and a good-quality reference monitor also helps cinematographers, DITs and colourists to see all these intricate differences.

**TD:** When considering monitoring on a set, there are two different objectives. The first is to ensure what is being captured meets the quality standards set for the project. Having well-calibrated quality monitors set up in an appropriate viewing environment – even when on location – is essential to this goal. This ensures what is being photographed will be effective from that moment all the way through to final viewing. The second objective is to experience a 'preview' of the visual characteristics of the completed project. Sometimes this is routine matching from shot to shot or creating a sense of time of day, or even crafting something entirely otherworldly. Most previous achievements with film stocks, processing or post production is now at least previewed during photography. Good

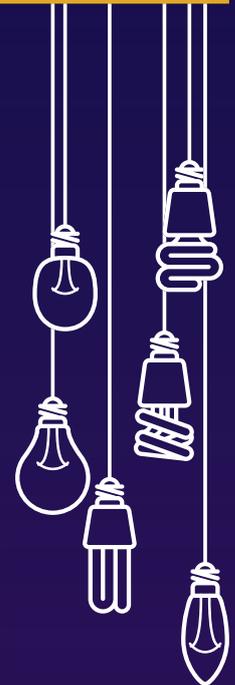


monitors and monitoring practices always produce better decisions on lighting, because the visuals are presented in a more authentic and reliable manner. A skilled DIT who routinely optimises the signal chain and monitors an eventual viewing area is an essential part of the team. The DIT is a great ally, determining which adjustments should be made for reasons of quality, consistency, creative objective – or a combination of all three.

**JV:** Right now, with easy colour temperature or hue adjustments, having a good visualisation tool on set is a must, and if the project is for HDR, even more. Much of the colour grading is created on set nowadays.

**Which type of light provides the most options when it comes to colour?**

**BL:** Manufacturers can design LEDs to be colour-tunable by mixing the spectral qualities of multiple types of LED. The simplest version of this is a bi-colour fixture; producing a range of colour temperatures by mixing two different white light emitters. For additional versatility, adding red, green and blue LEDs to create lights with RGBWW or RGBACL chipsets allows users to reproduce more hues. Using our own blend of RGBWW LEDs, the Nova P600c and LS 600c Pro are some of our most advanced lights to date, with our widest available colour gamut allowing the exact colour selection for their scene. ●



**NM:** Thanks to Rosco’s Mix Technology, all Rosco DMG Lighting fixtures provide filmmakers with the most colour options of any lighting source available today. It features six LEDs – red, lime, green, blue, amber and white. This proprietary blend of emitters enables our fixtures to produce a wider gamut of colours than RGBW/RGBA fixtures. The red, lime and amber LEDs have also been phosphor converted. This process fills in spectral gaps found in other colour-mixing lights, and optimises the fixture’s output to better match the sensors of digital cameras. The wider colour gamut created by Rosco’s Mix technology enables the DMG Maxi to create over 130 True Rosco Colour gel matches. These colours have been verified – by eye, meter and by camera – to match the traditional tungsten and daylight sources with Rosco gels on them.

**TD:** The multi-colour fixtures in the Creamsource line-up are unmatched in terms of dynamic capabilities, including the ability to be used in almost any climate. The Vortex series LED panel is optimised for overall brightness in each constituent colour, toggling between hard and soft light. This makes it a versatile option for gaffers and cinematographers.

**JV:** Currently, LED’s. The state-of-the-art is the one that offers the widest colour space, whether in panels, fresnels, tubes, asymmetrical, open faces...

**With the growth in the market, can you see LED eventually replacing tungsten?**

**BL:** In many ways, LEDs have already replaced tungsten in small- to large-

## “In many ways, LEDs have already replaced tungsten in small- to large-scale productions”

scale productions. The benefits LEDs provide in terms of their ease of dimming and modification – and for some fixtures, colour tuning – are significant in comparison to traditional tungsten fresnels and Par lights. Tungsten fixtures are still in use for their relative affordability and impeccable colour quality due to being black-body illuminants. However, LED technology is growing rapidly and is incredibly affordable. In the very near future, the ability of LEDs to reproduce the spectral qualities of tungsten lights (their tungsten SSI) will achieve new heights, making them nearly indistinguishable from the original source.

**NM:** Yes, I can say with certainty we see a change coming to the market, replacing traditional tungsten lights. Stay tuned!

**TD:** With the advent of LED technology, productions are able to work more efficiently, cutting costs while simultaneously reducing their carbon footprint. Studios are encouraging filmmakers to go green, meaning the number of adopters of LED lighting will continue to rise at an exponential rate.

The debate of LED versus tungsten harks back to the digital versus film conversation. The key takeaway remains the same; the look of the project should determine the choice of equipment. That

logic can apply to lighting, lenses or cameras. LED technology is another tool in the kit empowering artists to achieve their creative vision.

A similar question was posed in Cinematography Mailing List, to which M. David Mullen, ASC, responded, “When someone comes up with an LED equivalent to the 20K tungsten fresnel”. Meaning there is still room for LED technology to advance, and Creamsource is prepared to drive innovation forward.

**JV:** Yes, of course, this is already a fact of life in many broadcasting studios and, to a greater or lesser extent, in all current shootings. Except for the higher powers, both in tungsten and in HMI, LED equipment is gradually replacing conventional sources.

In terms of light quality or other lighting parameters, both tungsten and HMI offer a texture LED equipment does not offer, but there are so many advantages LED gear offers in other fields that its use on set has become a true workhorse solution.

In this case I would refer to the slogan of our Kosmos fresnel series: Speed up your shoot!

All the other advantages that LED brings could be summarised in that one phrase. Not only the lighting crew, but production and direction teams are also very well aware of this! ●