

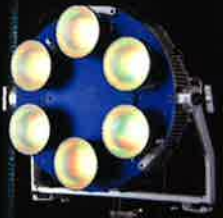
IBC SHOW GEAR PREVIEW
ALL THE GREAT NEW LAUNCHES INSIDE P14

DEFINITION

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HIGH POWER

LED technology
gets intense

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“The question is not does it have a fan, it’s can I hear it, for the high end users. Indie operators are way more open”

LEFT The Stella Pro from California-based Light & Motion

BELOW Aputure’s 300D COB light at a trade show

If you want high efficiency and high output, you can do it. But you tend to be giving up colour quality. If you want good colour quality and high output, the trade-off is actually efficiency, and there’s a fear about that because, fundamentally, the basic promise of LEDs was efficiency.”

NEWLY ACQUIRED CINEO

Lighting manufacturer Cineo was recently acquired by NBCUniversal, a vote of confidence in the increasing relevance of LED lighting for companies involved in seriously upscale productions. Rich Pierceall, ex-Cineo CEO, is vice-president of LED operations at NBCUniversal and echoes Miller’s thoughts. “If you were to lower the quality of the white light coming out, you can get greater efficiency out of the LED. In our industry, that’s not a trade-off we choose. In the residential, commercial lighting industry, we’re seeing far greater efficiency out of LEDs, but at the sacrifice of the spectral quality.”

Pierceall has long been involved in pushing LEDs towards higher power. “We’ve built things at 1200W – we’ve had years of experience building kilowatt-style fixtures. The latest high-powered fixture we have, which is the LB800, is about 900W. The numbers that we use in Cineo products are the target power usage – we’ve actually been able to tune it so that we get a little bit more power density out of it. Here’s the secret, and this is no secret, but it’s the thing that people don’t talk about, it’s called physics. Most

If any one issue defines the LED lighting market, it’s thermal management. Many of the cleverest designs would have been much less involved had LEDs not been so sensitive to overheating. California-based Light & Motion builds LEDs for a variety of markets, and therefore has experience optimising for various combinations of colour quality, power density and efficiency. Engineer David Tolan states simply: “Thermals dictate how hard you can drive the LED.”

Without good thermal design, Tolan continues, the outcome is inevitable: “Either it’ll burn up or it’ll reduce its lifetime. We have some passive cooled ones, then we have some active cooled ones with fans. Under 5000 lumens, we generally do passive, and above that we do active cooling. And that’s somewhat dictated by the size. We have a pretty compact product. If you had a much larger heat sink, you might not have to do active cooling.”

Light & Motion’s products top out at 10,000 lumens, with the Stella Pro CL 10,000c, a fairly compact light by modern standards, but Tolan is optimistic that fundamental improvements in the basic LED emitter will reap rewards: “As more efficient LEDs come out, we get better cooling. I’m not thinking we’re going to massively increase it.”

THE FAN DEBATE

Ted Sim, president of Aputure USA, feels the industry’s acceptance of fan cooling is a trend that will only grow over time. “The challenges of

second: heat dissipation. The question is not ‘does it have a fan?’ anymore. For the high-end users, it’s: ‘can I hear it?’ I would say for the indie owner-operator market, they’re way more open with fans.” Aputure has seen great success with its COB 120 and COB 300 series of hard lights; both are, quietly, fan-cooled.

While Sim suggests the 120D is the company’s biggest seller, he adds: “There’s more enthusiasm for the 300D. The reason for that is – the high-end cinema world doesn’t realise this, I think – the owner-operator world will always be something like five or ten times bigger.” Perhaps because of the allure of bigger numbers, Sim confirms: “You will see higher-powered fixtures coming out of Aputure. We want to be able to service the best cinematographers. Those people need features that are entirely different. They need lumen radio, they need a bombproof housing design.”

NBCUniversal’s Pierceall suggests that, while a soft light panel has more area for heat sinking, the desire for more power tends to offset the advantage. “You build a four-by-four foot fixture, then you have sixteen square feet of heat sink. You find the lumen density you can get as far as output is concerned. Five, six years ago, fans were taboo – you couldn’t put a fan on a fixture and get it on a set. By getting some air motion going, it changes the equation significantly. We’ve found ways to work with thermal densities in a 200, 250 watt-per-square-foot scenario that we →

