



VIDEO PROJECTORS FOR THE CLASSROOM: TOWARD AN IMPROVED TCO MODEL

Presented by:

SONY

An **AVTECHNOLOGY** Partner

Best Practices for Breaking the Cycle of “Replace and Spend” for Video Projectors in Schools and Universities

INTRODUCTION

While video projectors have always been the AV display mainstay for classrooms (as well as for corporate meeting rooms), the endless lamp replacement cycle for lamp-illuminated projectors leads to high TCO (total cost of ownership), regardless of the initial price point of the projector. But new advances in solid-state illumination—specifically in the form of 3LCD laser illumination—are breaking this expensive lamp-replacement cycle and yielding significant savings for all projector owners, including schools and universities. This white paper will explain best practices for maximizing your return on your video projector investment, including: choosing lamp-free laser projectors with quantifiable improvements in TCO; maximizing the peripheral benefits of laser projectors, including freeing up your maintenance staff for more important duties; and avoiding the trade-off of reduced color performance for better TCO in your choice of laser projectors.

THE 3LCD LASER PROJECTOR AND THE NEW TCO MATH

The video projector is crucial to providing for the AV needs of schools and universities. But all of the conventional lamp-based projectors have two significant Achilles' heels. First, the lamps need to be changed regularly regardless of whether or not there is outright lamp failure. The decay in light

output before total lamp failure degrades the image onscreen and the viewing experience suffers from a negative shift in color accuracy and saturation as a lamp ages. Second, the cumulative cost of replacing lamps in lamp-based projectors includes both material and labor costs. Owners must consider both costs when calculating the true TCO of a lamp-based projector. The projection industry has been tasked with breaking the lamp replacement cycle by providing more long-life illumination solutions. The best result of that effort is the introduction of the 3LCD laser phosphor projector—known to users as the “laser projector.” These new-generation laser projectors are the future of lower TCO, high-lumen video projection with optimal color accuracy. And they are here, now.

From a TCO perspective, the primary best practice for reducing ongoing video projector costs is to take full advantage

“When the Sony laser projector technology arrived, we did a thorough survey of the market... Other lamp-free systems from other manufacturers simply do not reproduce a full range of colors, and that seems inherent to their LED/laser hybrid design. Sony’s blue laser and phosphor technology generates images that are virtually indistinguishable from Sony’s equivalent bulb-based units.”

—Robert Mann, manager of classroom operations and special events, University of North Carolina, Wilmington



Laser projectors have a lamp life of approximately 20,000 hours, compared to the 3,000-hour life of a conventional projection lamp.

of the key attribute of laser projectors: their 20,000-hour illumination life. This exponential increase in lamp life translates to real money saved over the life of the projector. For a typical lamp-based projector in the 3,000—5,000 lumen range, the cost of 20,000 hours' worth of lamps (with an average lamp cost of well over \$250 per lamp) translates to hard dollars that the user must add to the initial purchase cost of the projector in order to arrive at an accurate TCO for that lamp-based projector installation. (And, in fact, many lamp-based projectors use two lamps per projector for their light source, resulting in a cost of \$600—\$900 per projector each time lamps are changed.) Compare that to the cumulative lamp replacement costs of a 3LCD laser projector run over the same life span: \$0.00.

There is perhaps no better way to illustrate the breakthrough in laser phosphor technology than with the advances made by Sony, a leading projector manufacturer. Sony's 3LCD Laser Light Source projectors incorporate a laser light engine and achieve up to 7,000 lumen (lm) exceptional Color Light Output. Sony's unique light engine uses a blue laser as its light source, which excites a phosphorous material that in turn creates full-spectrum light. The light is delivered to a 3LCD optical system that projects constant, vibrant RGB color. Laser projectors do not compromise image quality. On the contrary, they better support the higher color gamut needed for 4K as well as high-contrast HD.

BEYOND LAMP REPLACEMENT SAVINGS: TAKING TCO SAVINGS TO NEW LEVELS

The best practice to take your TCO savings to the highest level is to focus not just on the cost savings that result from

not having to replace lamps. Other factors that contribute to TCO savings with laser projectors include: smaller electricity bills; better use of the classroom time; fewer maintenance calls to classrooms; and no frustrated teachers or professors holding up the start of class to deal with projector maintenance.

Clearly the cost savings with a laser projector don't end with the elimination of lamp replacement bills. Not having to replace lamps also translates to money saved on the labor to change those lamps. And since 3-chip LCD laser projectors use less electricity than 1-chip lamped or laser projectors, the savings on electricity costs over time also need to be added into the TCO equation. In addition, no lamp replacements means no downtime in the classroom, and over time that also translates to time and money saved on idle classrooms.

"When we first introduced our new Sony laser projectors, the main focus was on the obvious TCO advantage—the cost savings from not ever having to replace a projector lamp," says Sander Phipps, senior product manager at Sony. "But as we launched it, everyone realized the other advantages. For example, in larger universities, one, two, or just a handful of people provide AV support for the whole campus—and they fear the call from the professor saying, 'Help, the projector doesn't work!' The failure rate for laser projectors is negligible, and so staff is freed up to do more important work. You really need to include that improvement in staff efficiency in your overall TCO calculations—the result will be even greater TCO savings for your school, both in terms of hard dollars saved, and also in terms of efficiency and peace of mind for your faculty, staff, and students."



Colorado State University is giving its students a chance to see the world differently—without ever leaving the lecture hall—with help from Sony's laser projection technology. The school's Morgan Library is using three edge-blended Sony 3LCD Laser Light Source projectors (model VPL-FHZ55) with Google Liquid Galaxy technology to create an immersive Google Earth experience (7 feet by 30 feet) that lets students and guests explore any place in the world, in depth, with high clarity. "We're trying to get as realistic as possible without having people leave the room. But the immersive side of it has to be realistic to make this happen, and that's where this laser projection technology really shines," says David Ramsay, director of strategic relationships at Colorado State University.

PURSUING PERFECTION: COMBINING TCO SAVINGS WITH BETTER—NOT COMPROMISED— VIDEO IMAGES

The final, and extremely important, best practice for choosing laser projectors is this: do not compromise image quality to get lamp-replacement savings. The best new-generation laser projectors better support the higher color gamut needed for 4K and UHD, as well as high-contrast HD. And more importantly for day-to-day and year-to-year operation, the best laser projectors today feature not just the purest color images but also continue to project images that are of more consistent quality and of higher brightness. So it's a win-win, both in terms of cost savings and image quality, if you choose laser projectors from a leading 3LCD video projector manufacturer that is known for rugged, installation-grade precision projectors with both improved color gamut and proven consistency of the projected image over time.

This win-win for color accuracy and consistency combined with more favorable TCO can be found in Sony's 3LCD projector line. Thanks to their 3-chip design, Sony projectors generate red, green, and blue primary colors all at the same time. This means that these projectors do not compromise picture quality for brightness. One-chip projectors can only generate one of the RGB colors at any given time. Even though the white light output is the same for both 1-chip and 3-chip projectors, once a color is displayed on the screen 3-chip laser projections will look brighter, with richer color. And when that color advantage is combined with the proven consistency of the projected laser image over time, the results speak for themselves.

"In larger lecture halls there are often multiple projectors in the same classroom," says Sander Phipps, senior product manager at Sony. "With lamp-based projectors in a multi-screen

NO WAITING — INSTANT ON AND OFF

The VPL-FHZ700L and VPL-FHZ55 laser light sources turn on and off instantly, unlike conventional lamp projectors that need time to warm up and cool down, wasting valuable time in the lecture or that very important presentation. No waiting anymore.

Conventional lamp projectors



VPL-FHZ700L and VPL-FHZ55 laser projectors



configuration like that, the projected images match the first day but over time the pictures degrade in quality, and what's worse, each one degrades differently. With laser projectors, on the other hand, the image is very repeatable, month after month, year after year. Install them, they power up instantly, and over time they don't drift in color or brightness."

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NEW-GENERATION SONY 3LCD LASER VIDEO PROJECTORS

The new Sony 3LCD laser video projectors deliver the best images available and are the most cost-efficient solutions for schools and universities, maximizing your return on your projector investment and freeing up your maintenance staff for more important duties. Sony laser projectors are rugged, installation-grade precision projectors that feature:

- 3LCD imaging for the highest level of projection that does not sacrifice color for brightness.
- A true laser light source, combined

with 3-chip LCD to produce all colors simultaneously.

- High brightness, up to 7,000 lumens, for classroom and meeting rooms.
- Compelling color performance, with a large color gamut.
- Lamp-less design that results in excellent TCO (no lamps to replace).
- Savings on electricity costs, as they use less electricity than 1-chip lamped or laser projectors.
- Standard instant on/off, with no waiting for the projector to power up.
- The ability to program the projector for automatic shutdown when there's no signal input, which eliminates the risk of faculty or students forgetting to turn them off.

Sony laser projectors are excellent for classroom and meeting room applications that require high brightness and excellent TCO in a lamp-less robust video projector with excellent color fidelity.

3LCD LASER PROJECTOR MODELS

Sony's lineup of 3LCD laser projectors continues to grow, with models ranging from 4,000 to 7,000 lumens (lm) color brightness. The user benefits from the simplicity and economy of Sony's award-winning laser light source and from the superior brightness of Sony's exclusive BrightEra® technology.

- Sony's WUXGA HD 3LCD laser projector models—the VPL-FHZ55 (4,000 lm), VPL-FHZ60 (5,000 lm), VPL-FHZ65 (6,000 lm), and VPL-FHZ700L (7,000 lm) laser projectors—are ideal choices for universities and schools, with superior picture quality, low running costs, and up to 20,000 hours of operation without changing the light source.
- Sony's 4K laser projectors—the VPL-GTZ1 (2,000 lm), VPL-GTZ270 (5,000

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lm), and VPL-GTZ280 (5,000 lm) models—combine Sony's exclusive SXRD® technology and Z-Phosphor laser light source to deliver stunning contrast, color accuracy, and consistency in full 4K resolution for compelling visualization, immersive entertainment, and powerful data display.

- Sony's 3-chip LCD laser projectors use less electricity than 1-chip lamped or 1-chip laser projectors, so you save on electricity costs over time. The Sony VPL-FHZ700L (7,000 lm 3-chip laser) uses only 497W of electricity—the lowest electricity usage of any projector from other companies in the 6,500—7,500 lumen class.
- Sony's 3LCD laser projectors boast the industry's quietest fans in the 3,000 lumen or brighter category. Less power consumption means less heat generation, which in turn means less fan noise. The VPL-FHZ65 6,000-lumen projector has the planet's quietest fan noise at 34 dB.

And to make the case for Sony laser projectors even more compelling, they're built into the same standard chassis size as other Sony F Series projectors, with the same familiar connections and a user-friendly interface. So the transition to laser is seamless—for the entire organization. ■

For more information: sony.com/laser or sony.com/edu.