

Rec  
9/29/23

(21)

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## MTSU Clean Energy Initiative Project Funding Request

There are five (5) sections of the request to complete before submitting. See <http://www.mtsu.edu/~sga/cleanenergy.shtml> for funding guidelines. Save completed form and email to [cee@mtsu.edu](mailto:cee@mtsu.edu) or mail to MTSU Box 57.

1. General Information	
Name of Person Submitting Request Jayme Brunson	
Department/Office Walker Library	Phone # (Office) 5462
MTSU Box # 13	Phone # (Cell)
E-mail Jayme.Brunson@mtsu.edu	Submittal Date 9/29/2023

2. Project Categories (Select One)	
Select the category that best describes the project.	
<input type="checkbox"/> Energy Conservation/Efficiency	<input checked="" type="checkbox"/> Sustainable Design
<input type="checkbox"/> Alternative Fuels	<input type="checkbox"/> Other
<input type="checkbox"/> Renewable Energy	

3. Project Information	
<p>a. Please provide a brief descriptive title for the project.</p> <p>b. The project cost estimate is the expected cost of the project to be considered by the committee for approval, which may differ from the total project cost in the case of matching funding opportunities. <b>Any funding request is a 'not-to-exceed' amount. Any proposed expenditure above the requested amount will require a resubmission.</b></p> <p>c. List the source of project cost estimates.</p> <p>d. Provide a brief explanation in response to question regarding previous funding.</p>	
3a. Project Title	Replacing lamp projectors with laser projectors in 3 library classrooms
3b. Project Cost Estimate	16,000
3c. Source of Estimate	James Copeland (MTSU ITD); TriStar Digital Connections (vendor)
3d. If previous funding from this source was awarded, explain how this request differs?	

#### 4. Project Description

(Completed in as much detail as possible.)

- a. The scope of the work to be accomplished is a detailed description of project activities.
- b. The benefit statement describes the advantages of the project as relates to the selected project category.
- c. The location of the project includes the name of the building, department, and/or specific location of where the project will be conducted on campus.
- d. List any departments you anticipate to be involved. Were any departments consulted in preparation of this request? Who? A listing may be attached to this form when submitted.
- e. Provide specific information on anticipated student involvement or benefit.
- f. Provide information for anticipated future operating and/or maintenance requirements occurring as a result of the proposed project.
- g. Provide any additional comments or information that may be pertinent to approval of the project funding request.

##### 4a. Scope: Work to be accomplished

Library classrooms 264A and 272 are equipped with a total of three (3) NEC P401W digital lamp projectors (which utilize mercury vapor bulbs). They were purchased in 2015 and are starting to fail. ITD has recommended we replace these projectors. Instead of purchasing another lamp projector model, we would like to install the Sony VPL-PHZ61 LCD laser projectors suggested by ITD. Laser projectors have a longer lifespan and produce less hazardous waste. The project will involve uninstalling and properly disposing of three bulb projectors, then purchasing and installing three laser projectors.

##### 4b. Scope: Benefit Statement

Replacing our lamp projectors with longer-lasting, non-toxic laser projectors will reduce our output of electronic waste. Lamp projectors use ultra high pressure (UHP) mercury vapor bulbs. These bulbs last approximately 4,000 hours under normal use. Each projector runs up to 640 hours per year (5 hours per day, 4 days per week, 32 weeks per year), which means the lamp must be replaced at least every 6 years. Because they contain mercury, the lamps must be treated as toxic waste and recycled properly. Lamp projectors also require regular maintenance and filter changes every 6,000 hours. Our current model is discontinued, so the supply of replacement parts is becoming unreliable. A laser projector does not use a bulb, does not require filter changes, and the model we have identified has a 20,000 hour life expectancy (approximately 30 years based on our 640 hours/year usage).

<b>4. Project Description (continued)</b>
<p><b>4c. Location of Project (Building, etc.)</b> James E. Walker Library classrooms 264A and 272. There are two (2) projectors in 264A and there is one (1) projector in 272.</p>
<p><b>4d. Participants and Roles</b> ITD initially recommended that we replace our bulb projectors with either laser projectors or digital displays. Though digital displays were preferred, their costs were substantially higher. ITD provided a quote for the Sony projector and installation costs. TriStar Digital Connections will provide the equipment and labor. Electrical work for mounting the projector will be completed by MTSU Construction and Renovation. Programming will be completed by the Library's Technology Director.</p>
<p><b>4e. Student participation and/or student benefit</b> These classrooms are used for hundreds of students participating in library instruction courses during the semester and CUSTOMS orientation sessions in the summer. Both activities require students to read information on the screen and follow along. The Sony laser projector offers nearly double the resolution of our current model, improving legibility and clarity for students. Additionally, the current projectors are so dim, we have had to remove light bulbs from the front of the classroom just to make the screen visible. A new projector would allow us to keep the classroom lit appropriately. Lastly, it is possible for projector bulbs to burst when they die, which would expose students and faculty to mercury and other hazardous chemicals. The laser projector has no bulbs or hazardous chemicals, so it eliminates that kind of risk.</p>
<p><b>4f. Future Operating and/or Maintenance Requirements</b> The Sony laser projector requires little to no maintenance. It is constructed to prevent dust accumulation and uses a filter that does need to be changed in standard classroom settings.</p>
<p><b>4g. Additional Comments or Information Pertinent to the Proposed Project</b> We are a very technology-driven building. Reducing our electronic waste production is important, especially when that waste is hazardous. It is a bonus if environmental changes made also benefit the end user. Ultimately, laser projectors will improve the classroom environment for students while reducing the stress on both our technology staff and faculty.  We were unable to secure a quote for the electrical work in time to submit this application. I have added an estimated \$4,500 (\$1,500 per projector) and rounded up to the nearest thousand to hopefully cover the actual expense.</p>

### 5. Project Performance Information

Provide information if applicable.

- a. Provide information on estimated annual energy savings stated in units such as kW, kWh, Btu, gallons, etc.
- b. Provide information on estimated annual energy cost savings in monetary terms.
- c. Provide information on any annual operating or other cost savings in monetary terms. Be specific.
- d. Provide information about any matching or supplementary funding opportunities that are available. Identify all sources and explain.

5a. Estimated Annual Energy Savings (Estimated in kW, kWh, Btu, etc.)

5b. Annual Energy COST Savings (\$)

5c. Annual Operating or Other Cost Savings. Specify. (\$)

The NEC P401W is no longer in production, so we have to rely on aftermarket parts. The cost to replace a lamp with OEM parts can cost \$200 or more. As laser projectors become the standard, we can expect the availability of lamp projector parts to dwindle or become prohibitively expensive.

5d. Matching or Supplementary Funding (Identify and Explain)

The library will pay for anything that exceeds the amount we are granted.

## Linda Hardymon

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**From:** Jayme N. Brunson  
**Sent:** Friday, September 29, 2023 1:48 PM  
**To:** Center for Energy Efficiency  
**Subject:** Library SCF Application - Mercury Bulb Projector Replacement  
**Attachments:** 2023 SCF Funding Request - Projectors.pdf; TriStar Quote.pdf; New Laser Projector - PHZ61\_51\_brochure.pdf; Current Bulb Projector - np-p401w-brochure.pdf; About UHP Mercury Lamps.pdf

Hello,

Attached is Walker Library's SCF application for replacing our mercury bulb projectors with laser projectors. I am having trouble with permissions on a couple of the relevant documents, so I'm attaching them as separate items instead of combining into one PDF. Let me know if you have trouble opening anything. Sorry for the inconvenience on that one.

I was holding out to get an additional quote from the MTSU electrician, but I made the request too late. If it comes in, I'd be happy to forward it along.

Thank you,  
Jayme

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Jayme Brunson, M.Ed.

[she/her/hers](#)

Administrative Services Supervisor | MTSU James E. Walker Library

Box 13 | Phone: (615) 898-5462 | Email: [jayme.brunson@mtsu.edu](mailto:jayme.brunson@mtsu.edu)

[Click here to book an appointment with me!](#)

# TriStar

## Digital Connections, LLC

A Visual Communications Company

110 Glancy St., Ste. 204, Goodlettsville, TN 37072  
 P: 877.207.6300 F: 615.264.3106 W: [www.TriStarDC.com](http://www.TriStarDC.com)

# QUOTE

**Number** TDCQ7055

**Date** Sep 25, 2023

Sold To	Ship To	Your Sales Rep
---------	---------	----------------

**Middle Tennessee State University**  
 James Copeland  
 Telecommunication Building, Room 205  
 732 Champion Way  
 Murfreesboro, Tennessee 37132  
 United States of America

**Brad Stubblefield**  
 615-478-3284  
 brad@tristardc.com

**Phone** (615) 904-8586  
**Fax**

**Phone**  
**Fax**

TriStar Digital connections, LLC  
 Will provide (3) new Sony Projectors with (3) new mounts for MTSU.

TDC will install new Sony projectors, on the supplied 2x2 tile bridge. TDC to install pass through plates in the knockout portion of the 2x2 Tile projector mount.

MTSU will be responsible for providing all electrical work for the 2x2 projector mount.

MTSU to provide any programming that may be required for the room.

Terms	P.O. Number
-------	-------------

Net 30

Line	Qty	Part #	Description	Unit Price	Ext. Price	Disc.	LIST
1	3	VPLPHZ51	5300 Lumens Laser Light Source Projector WUXGA	\$2,385.00	\$7,155.00	D47	\$4,500.00
2	3	RPMAUW	RPA Elite Universal Projector Mount with Keyed Locking (A version)-RPMAUW	\$226.80	\$680.40	D30	\$324.00
3	3	CMS006009W	6-9 Inch Adjustable Extension Column, Pole - White	\$60.20	\$180.60	D30	\$86.00
4	3	CMS445P2	SpeedConnect Suspended Ceiling Tile Replacement Kit with 2-Gang Filter & Surge	\$403.90	\$1,211.70	D30	\$577.00
5	3		pass through plates	\$30.00	\$90.00		\$0.00
6	1	TDC Freight	TDC: Freight	\$270.00	\$270.00		\$0.00
7	17	TDC Install	TDC: Labor	\$95.00	\$1,615.00		\$0.00

<b>SubTotal</b>	\$11,202.70
<b>Tax</b>	\$0.00
<b>Shipping</b>	\$0.00
<b>Total</b>	<b>\$11,202.70</b>

PRICES SUBJECT TO CHANGE - PRICES BASED UPON TOTAL PURCHASE - ALL DELIVERY, TRAINING OR CONSULTING SERVICES TO BE BILLED AT PUBLISHED RATES FOR EACH ACTIVITY INVOLVED - GENERALLY ALL HARDWARE COMPONENTS PROPOSED ABOVE ARE COVERED BY THE MANUFACTURER'S WARRANTY - ALL SERVICES INCLUDE A 30 DAY SERVICE WARRANTY - PRICES ARE GOOD FOR 30 DAYS - PRICES MAY NOT INCLUDE APPLICABLE TAXES - PRICES MAY NOT INCLUDE INSTALLATION, FREIGHT AND SHIPPING CHARGES - APPLICABLE CHANGE ORDER AND RETURN/RESTOCK FEES MAY APPLY - PLEASE CHECK ALL PACKAGES WHEN RECEIVED FOR SHIPMENT DEFECTS OR IRREGULARITIES. ADDITIONAL 4.0% CHARGE WILL APPLY FOR ORDERS THAT USE A CREDIT OR DEBIT CARD FOR PAYMENT.

# P Series

*P401W, P451X, P451W and P501X digital projectors*

Easy to use and at the right price, P Series projectors provide all the essential features that you need to connect with your audience. Highlighted by enhanced connectivity and bright images, these models are ideal for entry-level integration environments such as corporate boardrooms, higher education classrooms and government training rooms.



## Essential Features for Integration

- With XGA and WXGA native resolutions, high brightness up to 5000 lumens and patented NEC technologies, P Series projectors display impressive image quality
- Remarkable contrast ratio (4000:1) enhances your image
- Powerful 16-watt speaker provides volume needed for large rooms
- Vertical lens shift provides for flexible installation
- Terminal cover easily hides cables to create a clean environment while deterring unintentional access
- Versatile, color-coded connections to computer, video sources and external monitor

### Top cover lamp change

This feature provides for easy lamp changes without removal of the projector from the mount.



### Active lens cover

This cover enables presenters to immediately mute the audio and video, then seconds later lower the lamp brightness to 25% for a short period of time.



### 6000-hour filter life

NEC is committed to designing its products to provide long lifecycles. This commitment even extends to components within its products, including the improved filter. This virtually maintenance-free filter reduces the frequency at which cleaning is required, thereby decreasing your total cost of ownership.



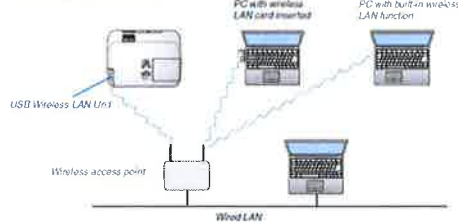
## Designed with the Environment in Mind

- Extended lamp life with ECO Mode™ technology increases lamp life up to 6000 hours, while lowering power consumption
- Power management enables projector to automatically turn off when an incoming signal is not detected from any of the inputs
- Auto Power On via the RGB (15-pin) input connector when a signal is detected from a computer
- Carbon savings meter calculates the positive effects of operating the projector in ECO Mode, which is encouraged by an optional message at startup. A green ECO Mode button on the remote control makes the switch easy.
- Quick start (3 to 4 seconds) lets you begin presenting in seconds while quick shutdown (immediate power off with no cooling required after shutdown) ensures efficient energy usage
- Sleep timer can be set to automatically turn off the projector at set countdown times
- Low power consumption (0.2W in stand-by mode) minimizes energy costs
- Direct power off provides instantaneous shutdown of the projector

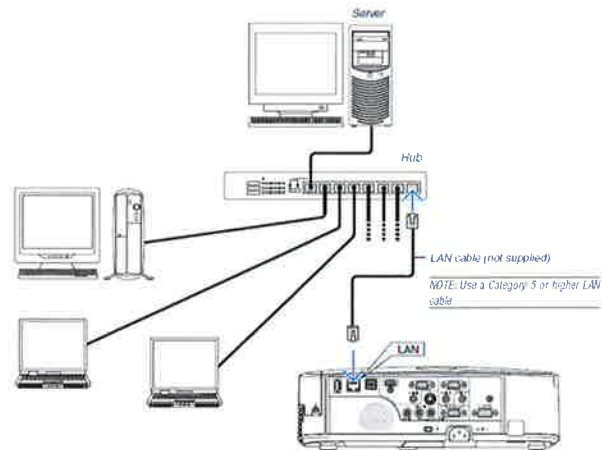
# Advanced Networking Capabilities

- Integrated RJ45 connection for quick connection to the LAN (10/100 base-T capability)
- Integrated high-speed wireless LAN IEEE 802.11b/g/n (Wireless LAN module optional)
- Remote diagnostics enable the user to monitor and make adjustments to the projector remotely
- PC CTL 4.0 controls the power switching input selection and other functions while managing lamp usage and a variety of other vital information over the network. Email notification and projector scheduling for better asset management is included with the software.
- Image Express Utility dedicated projector software (IEU 2.0; compatible with Windows or Mac operating systems) provides wired and wireless data transmission via peer-to-peer or over the network
- Broadcast mode allows you to send information from one computer to several projectors
- Image Express Lite dedicated projector software provides wired and wireless data transmission via peer-to-peer or over the network
- Windows Network Projector function within Windows Vista connects directly to networked projectors without the need for additional proprietary software
- Windows Remote Desktop function allows you to control a networked computer by connecting a USB mouse and keyboard directly to the projector's USB input
- Windows Media Connection and Network Drive functions display multimedia files (.jpeg, .bmp, .png, .mpeg2 or .wmv9) stored on the Windows Media Connect server, in the Windows shared folder, or on a local network using the Viewer function—all without bringing your PC into the conference room
- Crestron Roomview

Example of wireless LAN connection (Network Type → Infrastructure)



Example of wireless LAN connection (Network Type → Ad Hoc)

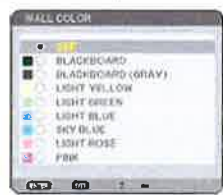


## Built-In Software

### Built-in wall color correction presets

These provide for adaptive color tone correction to display properly on non-white surfaces.

On a green wall...



BEFORE auto wall correction



AFTER auto wall correction



### DICOM SIM

DICOM Simulation enables users in medical environments to display accurate diagnostic images.





# Advanced Software Features

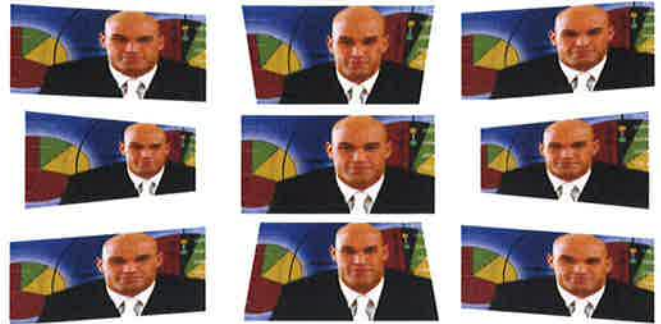
## Virtual Remote™

Used via a network connection (wired/wireless), you can control the projector directly from a computer without the need for additional control cables.



## Cornerstone

Enhanced keystone correction allows for horizontal, vertical and diagonal image correction for aligned images even when the projector is set up at an angle to the screen.



# Get Connected with a Wide Selection of Inputs

- Dual computer inputs ensure quick switching between presentations
- Four audio inputs (two mini stereo, R/L and HDMI) make it easy to add sound to enhance your presentations

## Remote control

Easy control from remote allows you to adjust lamp mode, aspect ratio, volume and image all with the touch of a button.



## Dual HDMI inputs

The introduction of dual HDMI (w/ HDCP) inputs allows for simultaneous digital connection of high-definition sources such as Blu-ray players, cable boxes, satellite receivers and personal computers.



**HDMI™**  
HIGH DEFINITION MULTIMEDIA INTERFACE

## Variable audio-out

This input enables the remote control to be used to adjust volume of self-powered external speakers that are connected to the projector. In stand-by mode the audio-out stays active, allowing the last input used to pass to the self-powered external speakers.



## USB Viewer

In instances when you'd prefer to leave your laptop behind for a presentation, P Series projectors can deliver a solution. Using the presentation conversion software included with your projector, simply place your file onto a USB drive and plug it into the projector's USB port. This allows you to display images stored as .jpgs from optional USB memory.



## USB input

Your connection options go even further with the P Series. Connect your laptop or PC directly to the projector using the USB port and a standard USB cable.



## Input panel cover

This optional accessory creates a clean look for your installation, while hiding signal cables and the power cord.





### UNIQUE FEATURES

**Advanced AccuBlend™** ensures detailed images when non-native resolution sources are connected to the projector

**64-step image magnification** with location control

**Countdown sleep timer** can be set to automatically turn off the projector

### WARRANTY

Registered owners receive a 3-year parts and labor warranty including the first year of InstaCare. The lamp is covered for one year or 500 hours, whichever comes first. InstaCare provides the original owner one year of either limited 3 business day repair/return or next business day exchange.

### SHIPS WITH

Remote control, batteries, power cord, RGB signal cable, built-in lens cover, user's manual on CD-ROM, quick start guide, product registration card, security sticker

### ORDERING MODEL NUMBERS

NP-P401W  
NP-P451X  
NP-P451W  
NP-P501X



## Specifications for P401W/P451X/P451W/P501X

### OPTICAL

Display Technology

Light Output (lumens)

Resolution

Native

Maximum

Contrast Ratio (up to)

Lamp Type

Lamp Life (up to)

Screen Size (diagonal)

Throw Ratio

Projection Distance

Projection Angle

Lens\*

Zoom

Focus

F-#, f-#

Shift (vertical)

Keystone Correction

P451X/P501X: 0.63" LCD with MLA  
P401W/P451W: 0.59" LCD with MLA  
P401W: 4000  
P451X/P451W: 4500  
P501X: 5000

P451X/P501X: XGA 1024 x 768  
P401W/P451W: WXGA 1280 x 800  
UXGA 1600 x 1200

4000:1

P401W/P451X: 240W AC

P451W/P501X: 270W

P401W/P451X: 4000 hours normal / 6000 hours eco

P451W/P501X: 3500 hours normal / 6000 hours eco

25 - 300 in., 0.64 - 7.6m

1.3 - 2.2

P451X/P501X: 1.9 - 45.3 ft. / 0.6 - 13.8m

P401W/P451W: 2.3 - 47.8 ft. / 0.69 - 14.6m

0 - 9.8° tele / 0 - 16.5° wide

1.7

Manual

F=1.7 - 2, f=17.4 - 29mm

P451X/P501X: 0 - 0.5V

P401W/P451W: 0 - 0.6V

Manual +/- 30°

### SIGNAL COMPATIBILITY/CONNECTIVITY

Scan Rate

Horizontal

Vertical

Supported Video Standards

SD/HD Video Signal Compatibility

HDMI Signal Compatibility

PC Signal Compatibility

Macintosh Compatibility

Input/Output Terminals

RGB1 (analog)

RGB2 (digital)

RGB3 (digital)

RGB4 (digital)

Video 1

Video 2

Audio 1

Audio 2

Audio 3

Audio Out

Monitor Out

Audio

External Control

Sync Compatibility

Microphone

Wireless LAN

15 - 100 kHz

50 - 120 Hz

NTSC, NTSC4.43, PAL, PAL-60, PAL-M, PAL-N, SECAM

1080i, 1080p, 720p, 576p, 576i, 480p, 480i, Y/Cb/Cr component

(with optional adapter - ADP-CVIE)

VGA, SVGA, XGA, WXGA, SXGA, 480p, 576p, 720p, 1080i, 1080p

VGA, SVGA, XGA, SXGA, SXGA+, UXGA

Yes

15 pin, Component video using ADP-CVIE adapter

HDMI w/HDCP

HDMI w/HDCP

USB A Type

RCA

S-Video

L/R RCA (shared by video sources)

1/8 in. stereo

1/8 in. stereo

mini stereo (Variable audio out)

Yes

16W speaker

RS-232, IR, LAN, DDC/CI, USB, Wireless LAN

Separate Sync / Composite Sync / Sync on G

1/8 in. stereo

Optional

### ELECTRICAL

Power Requirements

Input Current

Power Consumption (ECO Mode off/

ECO Mode/Standby/Standby-Power Saving)

100 - 240V AC, 50/60Hz

P401W/P451X: 3.9 - 1.7A

P451W/P501X: 4.2 - 1.7A

P401W/P451X: 325W / 231W / 10W / 0.2W

P451W/P501X: 357W / 231W / 10W / 0.2W

### MECHANICAL

Installation Orientation

Dimensions (WxDxH)

Net Weight

Fan Noise

Regulations

Floor/Front, Floor/Rear, Ceiling/Front, Ceiling/Rear

15.7 x 11.1 x 4.5 in. / 398 x 282 x 127mm

9 lbs. / 4.1 kg

P401W/P451X: 36 dB normal / 30 dB eco

P451W/P501X: 37 dB normal / 30 dB eco

UL60950-1, CSA60950-1, FCC Part 15 Class B, ICES-03 Class B,

NOM-001-SCFI-1993

### ENVIRONMENTAL

Operating Temperature

Humidity

Storage

41° - 104°F / 5° - 40°C

20-80% non-condensing

14° - 122°F / -10° - 50°C

### ACCESSORIES

NP01MR

NP02LMI

NP03CV

SPKR20

ADP-CVIE

MP3000CM

NP01UCM

AEC00B09

AEC012018

AEC0203

AEC0305

SCP200

NP23LP

RMT-PJ31

NECEW2-I

ADVEXON2-I

IR receiver enables PJ remote to control PC and MAC functions

802.11b/g/n wireless LAN adapter

Input panel cover

Amplified 30 watt speaker

Component video to VGA adapter

Ceiling mount

Universal ceiling mount for projectors weighing less than 40 pounds

6 to 9 inch adjustable extension column for use with projector mount

12 to 18 inch adjustable extension column for use with projector mount

2 to 3 foot adjustable extension column for use with projector mount

3 to 5 foot adjustable extension column for use with projector mount

Adjustable suspended ceiling plate for use with ceiling mount

Replacement lamp

Replacement remote control

Extends term of parts and labor warranty to 4 years

Extends term of InstaCare service program to 3 years

Additional accessories are available, including screens, carts, mount accessories and replacement cables. Visit [www.necdisplay.com](http://www.necdisplay.com) for details.

Advanced AccuBlend, ECO Mode and Virtual Remote are trademarks of NEC Display Solutions. HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC. All other brand or product names are trademarks or registered trademarks of their respective holders. Product specifications subject to change.

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NEC Display Solutions  
500 Park Boulevard, Suite 1100  
Itasca, IL 60143  
866-NEC-MORE

[necdisplay.com](http://necdisplay.com)

NEC

# SONY

## VPL-PHZ61/51

3LCD Laser projectors



Beautifully slim and light with the smallest body in its class, the VPL-PHZ61/51 laser projectors combine outstanding picture performance with up to 7,000lm\* center brightness and impressive reliability. With flexible installation options, minimal maintenance, and 4K 60P input support, these projectors are an ideal choice for today's integrated AV environments. \*VPL-PHZ61

### WUXGA

PHZ61 : 7,000lm (Center) 6,400lm

PHZ51 : 5,800lm (Center) 5,300lm



[pro.sony/projectors](http://pro.sony/projectors)

# Bold, rich color even in brightly lit rooms

## Clearer images and text

Reality Creation uses powerful algorithms that boost image resolution closer to 4K-like quality. Reality Text improves visibility of characters: great for conference rooms, university seminar rooms and large classrooms.

### For images



Reality Creation OFF



Reality Creation ON

Clearer image with more depth  
Simulated images

### For presentation materials

sep	Oct	Nov	Dec	Fluctuation	ALL
8,881	727,632	262,564	783,129		4455,510
6,029	18,806	33,999	58,457		629,831
1,958	52,599	14,619	1,920		778,070
1,422	66,561	50,126	49,577		677,680
7,084	45,217	29,525	24,551		933,318
1,169	21,306	46,792	65,011		511,122
8,320	12,148	49,696	8,679		652,284
1,729	5,935	40,806	48,924		748,210
1,885	31,805	37,509	37,580		635,501

Reality Text OFF

sep	Oct	Nov	Dec	Fluctuation	ALL
8,881	727,632	262,564	783,129		4455,510
6,029	18,806	33,999	58,457		829,831
1,958	52,599	14,619	1,920		538,070
1,422	66,561	50,126	49,577		677,680
7,084	45,217	29,525	24,551		493,314
1,169	21,306	46,792	65,011		511,122
8,320	12,148	49,696	8,679		657,284
1,729	5,935	40,806	48,924		748,210
1,885	31,805	37,509	37,580		635,501

Reality Text ON

Clearer letters and lines with enhance legibility  
Simulated images

## Bright, beautiful colors

Bright View is Sony's unique processing technology that brightens images while maintaining rich color – even in brightly-lit business and educational environments.



Bright View OFF



Bright View ON

Simulated images

## Enhanced viewing experience

Sony's Intelligent Settings feature optimizes brightness, cooling system, and other projector settings to suit four usage environments. In addition, with Ambiance, our new built-in ambient light sensor, the projector measures a room's brightness and automatically adjusts color gain, Bright View mode, and Reality Creation settings to match the environment and enhance the viewing experience.

### Ambiance includes an ambient light sensor



### Location selection in Intelligent Settings

#### Meeting/Classroom



Clarity first

#### Museum



Color accuracy first

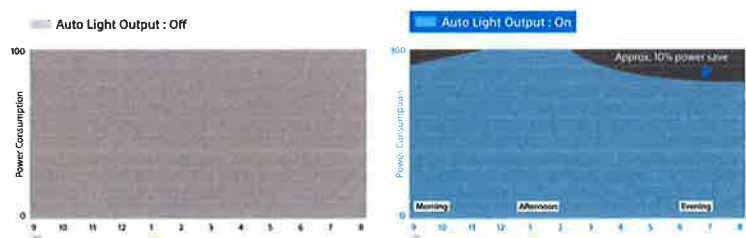
#### Entertainment



Vivid color first

## Enjoy optimum pictures while saving energy

The VPL-PHZ61/51 make sound business sense, helping you reduce running costs in corporate and educational environments. A new Auto Light Output feature works in conjunction with Ambiance, optimizing image quality and maintaining high visibility while reducing power consumption.



\*The feature works in conjunction with Ambiance, optimizing image quality and maintaining high visibility while reducing power consumption.

## 4K 60P input support

Support for 4K 60P input signals makes life simpler when you're using the VPL-PHZ61/51 in multi-screen set-ups with flat panel sub-screens. Just split the same 4K signal to drive all your display devices with no conversion needed. There's also a high-performance image scaler that effortlessly converts 4K input signals to WUXGA resolution while achieving close to 4K image quality. Now optimized for 4K60P signals, Reality Creation is Sony's unique picture enhancement feature that gives projected images even greater crispness and depth. There's also support for devices with content protection such as 4K UHD players.



## Smart, installation friendly design

Enjoy flexible installation options with a generous +55% vertical lens shift range, making it easy to achieve perfectly-proportioned pictures without long pole mounts or keystone correction when the projector is ceiling mounted. We've also widened the throw ratio range, simplifying replacement of a previously installed projector without the hassle of re-positioning an existing ceiling mount.

## Brighter for longer with less maintenance

### Designed with intelligence

Intelligent Settings simplifies installation and maximizes performance based on usage, image detail, color richness and fidelity, light output, cooling level and output noise. The Meeting/Classroom function controls laser output to keep brightness as high as possible for years of real-world use.

### Keep dust out of the picture

The projector's laser light source is sealed to prevent dust accumulation and eliminate reduced brightness. The dedicated cooling duct structure for the projector's 3LCD panels is covered with an air filter to prevent dust from entering.

### Hassle-free filter care

Focus on great-looking images instead of time-consuming maintenance. A new filter material makes routine filter changes unnecessary for general use in classrooms and meeting rooms.\* For heavier use in dusty environments there's a new clogging sensor to advise when filter replacement is needed.

\* Dust density < 0.03mg/m<sup>3</sup> and operating time < 10,500 hours. (1,500 hours/year over 7 years.)

## Other Features

### Data Cloning

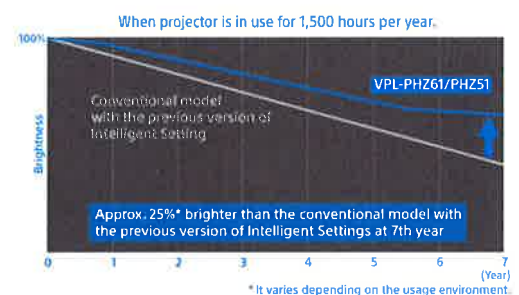
Settings for one projector can be copied to other projectors using a USB memory drive. This greatly simplifies installation and set-up of multiple projectors.

### Auto Input Select

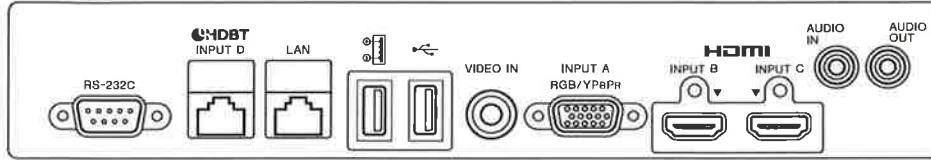
The Auto Input Select feature automatically selects an active signal input, so there's no need to change input each time a device is connected to the projector.

### Auto Power on

Connect the VPL-PHZ61/51 to a switched-on computer, and the projector turns on automatically, without having to operate the power button.



# Connector Panels



## Specifications

		VPL-PH261	VPL-PH251
Display system		3 LCD system	
Display device	Size of effective display area	0.64" (16.3 mm) x 3 BrightEra LCD Panel, Aspect ratio: 16:10	
	Number of pixels	6,912,000 (1920 x 1200 x 3) pixels	
Projection lens	Zoom	Manual (Approx. x 1.6)	
	Focus	Manual	
	Lens shift	Manual, Vertical: -35% to +55%, Horizontal: +/- 15%	
	Throw ratio	1.23:1 to 1.97:1	
Light source	Laser diode		
Filter cleaning maintenance / replacement cycle (Max.)*1	Auto detecting (by clogging sensor)		
Screen size	40" to 300" (1.02 m to 762 m) (measured diagonally)		
Light output (Mode: Standard / Middle)*2	6,400 lm*3, 7,000 lm (Center)*4 / 4,700 lm		5,300 lm*1, 5,800 lm (Center)*4 / 4,000 lm
Color light output (Mode: Standard / Middle)*2	6,400 lm / 4,700 lm		5,300 lm / 4,000 lm
Contrast ratio (full white / full black)*2	∞ : 1		
Speaker	16 W		
Displayable scanning frequency	Horizontal	15 kHz to 92 kHz	
	Vertical	24 Hz to 92 Hz	
Accepted signal resolution	Computer signal input	Maximum signal resolution: 1920 x 1200 *5	
	Video signal input	NTSC, PAL, SECAM, 480/60i, 576/50i, 480/60p, 576/50p, 720/60p, 720/50p, 1080/60i, 1080/50i, 1080/60p, 1080/50p, 3840/60p, 3840/30p, 3840/25p, 3840/24p, 4096/60p, 4096/30p, 4096/25p, 4096/24p	
Keystone correction (Max.)	Horizontal	+/- 30 degrees	
	Vertical	+/- 30 degrees	
OSD language	27-language (English, French, German, Italian, Spanish, Portuguese, Japanese, Chinese, Korean, Russian, Dutch, Norwegian, Swedish, Thai, Arabic, Turkish, Polish, Vietnamese, Farsi, Finnish, Indonesian, Hungary, Greek, Czech, Slovakia, Romania)		
Input / Output (Computer / Video / Audio / Control)	INPUT A	RGB / Y PB PR input connector: Mini D-sub 15 pin (female), Audio input connector: Stereo mini jack	
	INPUT B	HDMI input connector: HDMI 19-pin, Digital RGB/Y PB PR, HDCP support, Audio input connector: HDMI audio support	
	INPUT C	HDMI input connector: HDMI 19-pin, Digital RGB/Y PB PR, HDCP support, Audio input connector: HDMI audio support	
	INPUT D	HDBaseT interface connector: RJ45, 4 play (Video, Audio, LAN, Control)	
	VIDEO IN	Video input connector: Phono jack (Composite), Audio input connector: Shared with INPUT A	
	OUTPUT	Audio output connector: Stereo mini jack	
	REMOTE	D-sub 9-pin (male) / RS232C	
	LAN	RJ45, 10BASE-T / 100BASE-TX	
	USB	TYPE-A x 1 (for F/W update), TYPEA for Power supply	
	Acoustic Noise (Mode: Standard / Middle)*2	37 dB / 34 dB	35 dB / 32 dB
Operating temperature (Operating humidity)	0°C to 40°C (32°F to 104°F) / 20% to 80% (no condensation)		
Storage temperature (Storage humidity)	-10°C to +60°C (14°F to +140°F) / 20% to 80% (no condensation)		
Power requirements	AC 100 V to 240 V, 4.7 A to 2.0 A, 50 Hz / 60 Hz		
Power consumption (Mode: Standard)	AC 100 V to 120 V	463 W	
	AC 220 V to 240 V	434 W	
Power Consumption (Standby Mode)	AC 100 V to 120 V	0.5 W (when "Standby mode" is set to "Low")	
	AC 220 V to 240 V	0.5 W (when "Standby mode" is set to "Low")	
Power Consumption (Networked Standby Mode)	AC 100 V to 120 V	1 W (LAN), 21 W (ALL Terminals and Networks Connected / exclude USB Device and speaker off, when "Standby Mode" is set to "Standard")	
	AC 220 V to 240 V	1 W (LAN), 21 W (ALL Terminals and Networks Connected / exclude USB Device and speaker off, when "Standby Mode" is set to "Standard")	
Standby Mode / Networked Standby Mode Activated	Approx. 2 minutes		
Dimensions (W x H x D) (without dust filter, protrusions)	Approx. W 422 x H 100 x D 333 mm (16 5/8 x 3 15/16 x 13 1/8 inches)		
Mass	Approx. 7.0 kg (15 lb)	Approx. 6.8 kg (15 lb)	
Supplied accessories	RM-P18 Remote Commander (1), Lithium battery (CR2025) (1), AC Power Cord (1), Setup Guide (1)		

\*1 This figure is the expected maintenance time, not a guaranteed time. The actual value depends on the environment and how the projector is used.

\*2 The figures are approximate. They vary depending on the environment or how the projector is used.

\*3 The value is in accordance with ISO 21118, and may differ depending on the actual unit. Brightness and contrast vary depending on use conditions and environments.

\*4 The value is light output measured at center area of screen in Standard mode, and average of all products shipped.

\*5 Available for VESA Reduced Blanking signal.

For other countries/regions  
IEC 60825-1:2014 CLASS 1 LASER PRODUCT



As with any bright light source, do not stare into the beam, RG2 IEC 62471-5:2015.

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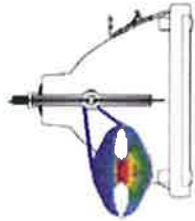
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## Light Guide: Ultra High Pressure Lamps (UHP)



The UHP lamp (ultra high pressure lamp, usually mercury arc) refers to projector lamps with an internal pressure of over 3000 lbs per square inch. The acronym also stands for ultra high performance. Originally developed by Philips in 1995, it is a common light source for digital data / video front projectors and rear projection televisions because it has very high light output available for the small environments of micro display projectors.

The main characteristics of UHP lamps designed for most digital projection applications are:

- Short arc
- Very high luminance
- Long lamp life
- High luminous efficacy
- Precise color spectrum
- Optimized reflector configuration

UHP lamps are light sources that combine high arc luminance ( $> 1\text{Gcd/m}^2$ ), a long lifetime (2000 - 4000 hours) and a low loss of lumens during that life. The high luminance is achieved by using highly pressurized ( $>200$  bar) mercury vapor as a discharge medium at high power densities of, for example, 120W into an 1.2mm arc gap. High mercury (Hg) pressure also results in improved color characteristics of the light source.

Fundamental for the correct performance of these lamps is the stability of the arc length, the correct dosing of the materials used inside the lamp and the quality of the materials. The electrode distance is kept stable during lifetime by a regenerative chemical cycle which uses oxygen and bromine to transport evaporated tungsten back to the electrodes. This cycle keeps the quartz wall clean which also helps maintain thermal balance.

UHP lamps have to be operated with care because of extremely high temperatures (inner bulb reaches about 1000 degrees C) and the fact that they are operated under high pressure. These lamps also generate ultraviolet (UV) radiation.

UHP lamps (the bulb only, not including the cage and connectors often part of projector replacement module) contain the following materials: mercury, fused quartz, tungsten insoluble compound, molybdenum insoluble compound. If the lamp is broken these materials may be released. Mercury is the material of concern since it is highly toxic. Spent lamps should be treated as toxic waste and preferably recycled.

Manufacturers of high pressure discharge lamps include:

Iwasaki (HSCR)  
Osram (P-VIP)  
Panasonic, Matsushita (HS)  
Philips (UHP)  
Phoenix (SHP)  
Ushio (NSH)

For a more detailed discussion of Philips UHP lamp technology download: [UHP Lamps for Projection Systems](#), Pekarski, et al.