Edge Blending Projectors

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November 12, 2013

NEC

Agenda

- NEC roadmap of Edge Blending Projectors
- NEC Multi Screen Tool Software
- Manual Edge Blending - High resolution

PROJECTION FACTORS

Ambient Lighting Conditions

Room Orientation

Screen Size

Resolution

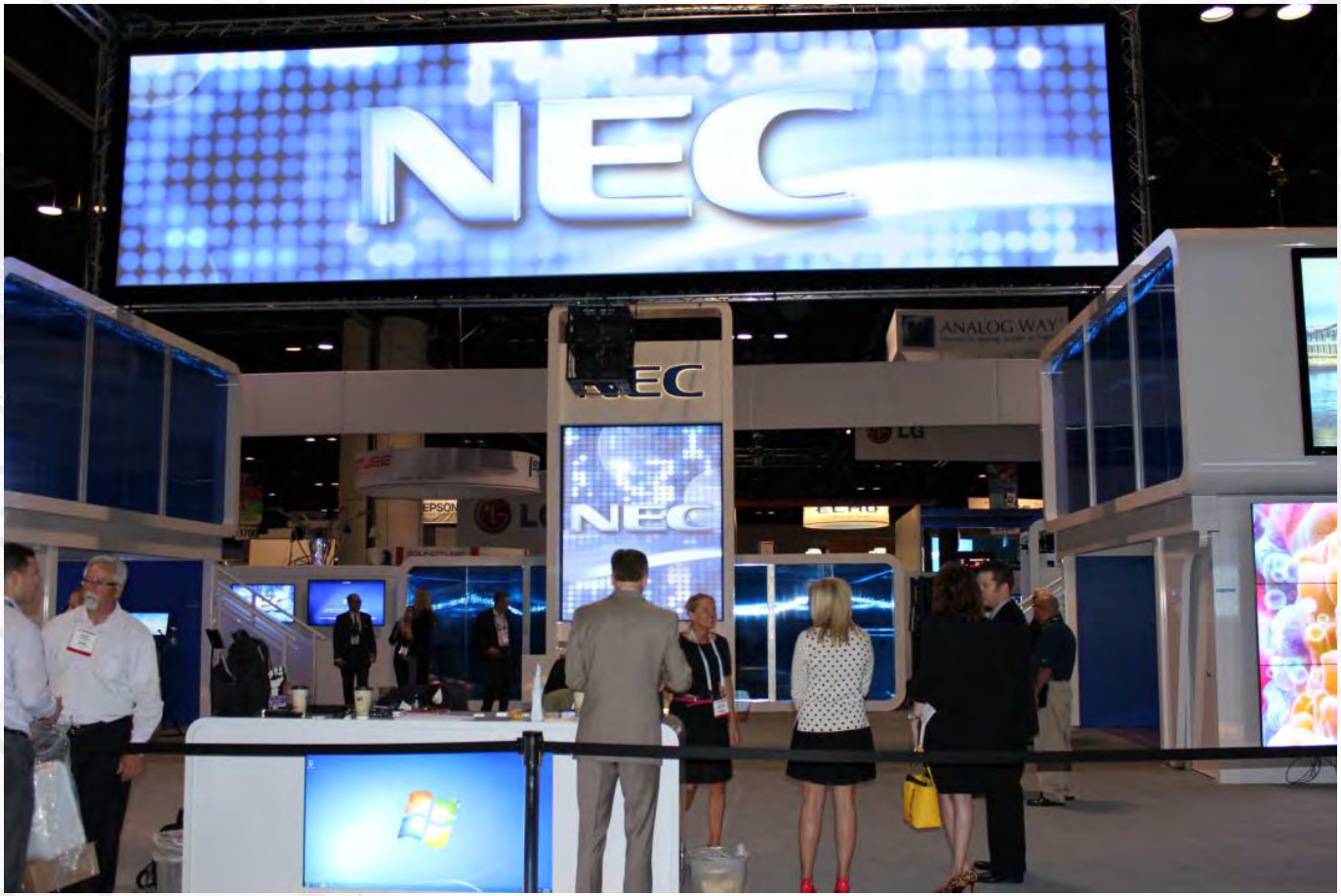
Installation Conditions

Screen Gain

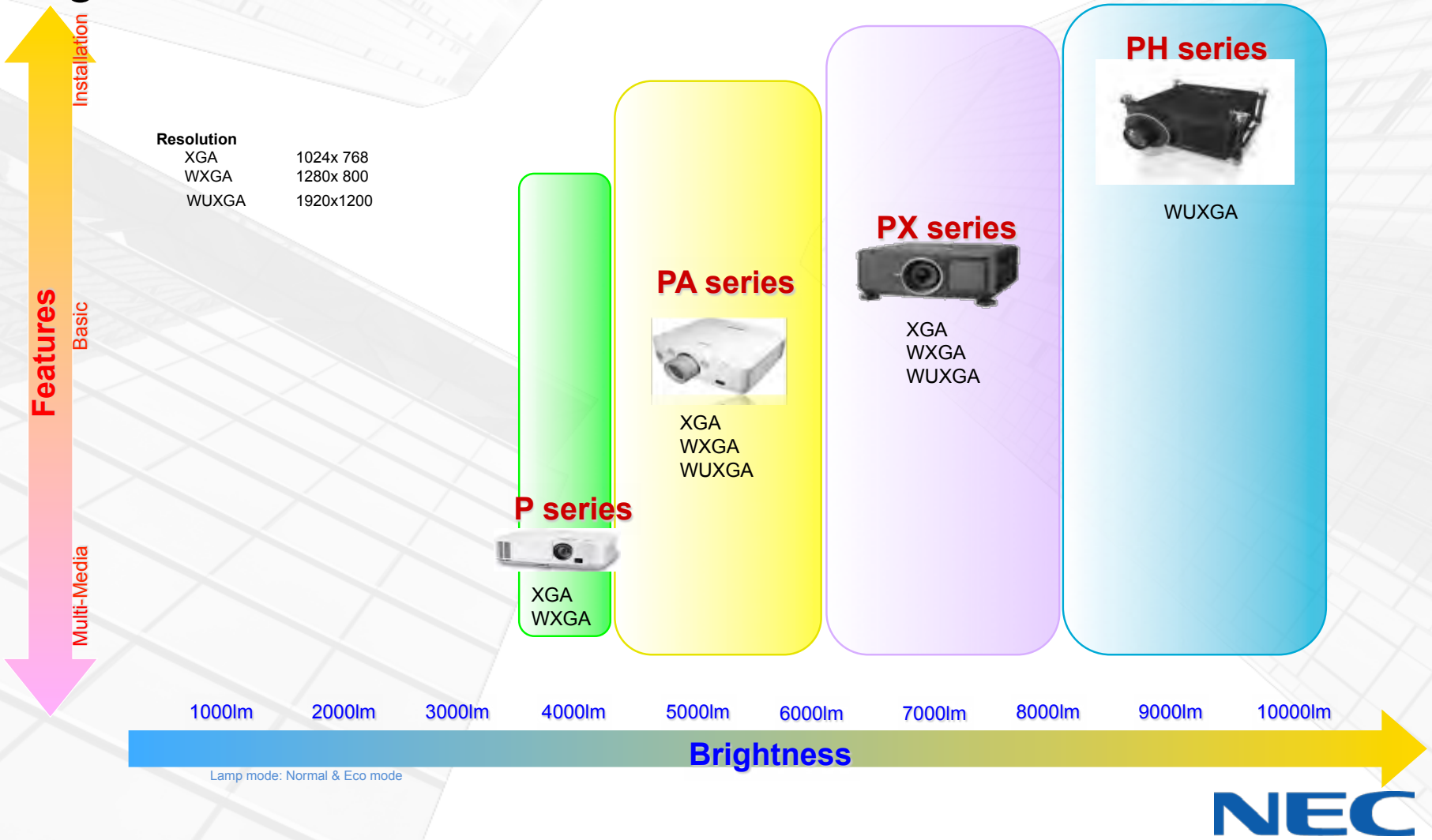
Multimedia Projector Application Photos

Retail Projection

Edge Blended Projection



Integration Products Portfolio



Understanding NEC projector model numbers

PX750U

Series | Lumens | Version | Resolution

PX 75 0 U

X=XGA	1024 x 768
W=WXGA	1280 x 800
U=WUXGA	1920 x 1200
H=FHD	1920 x 1080

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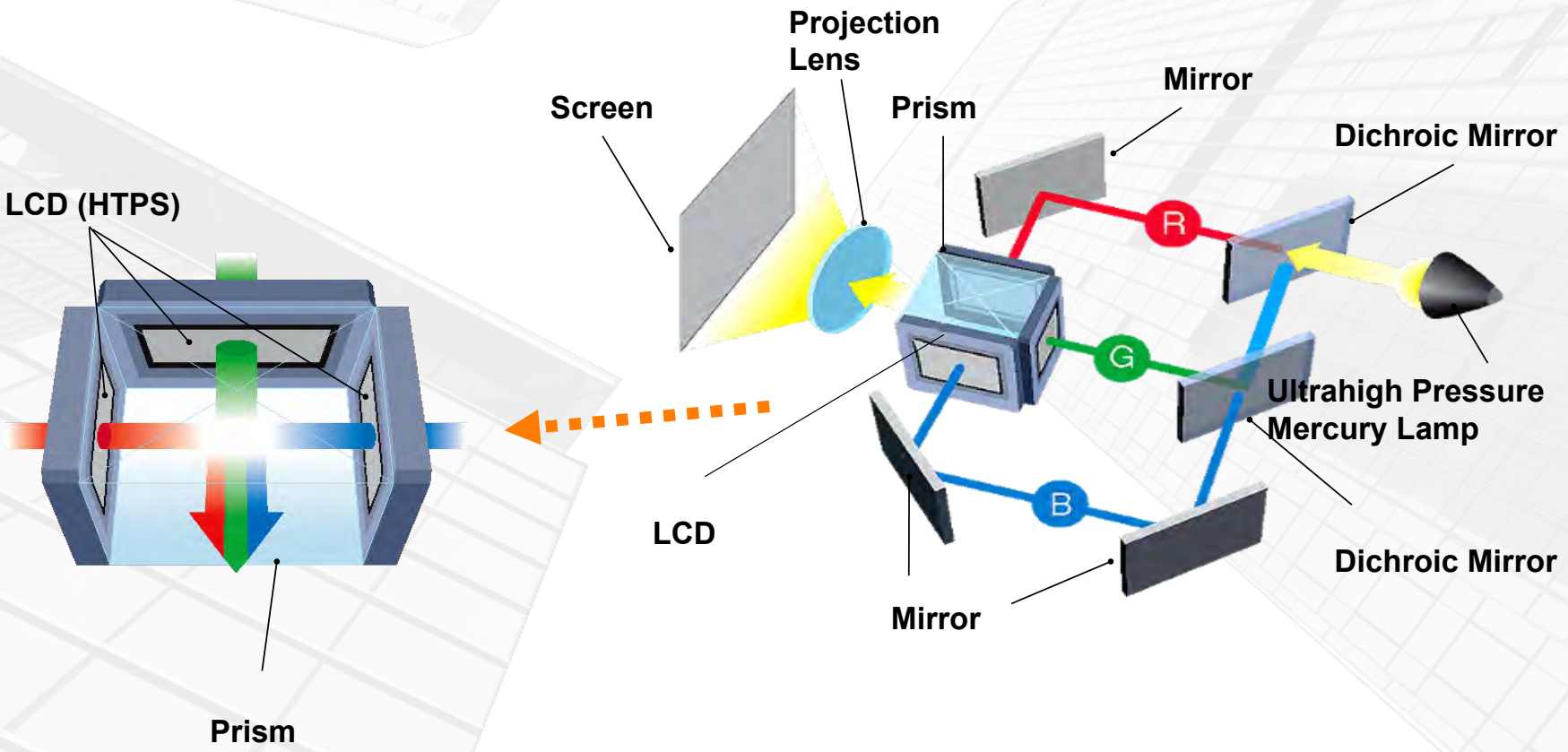
Optical System of a 3 LCD System



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PA Series – High-Performance, Bright

- **Models**
  - NP-PA500X
  - NP-PA500U
  - NP-PA550W
  - NP-PA600X
- **Market**
  - Higher education facilities
  - Corporate customers
  - Large-screen applications
- **Key Benefits**
  - XGA, WXGA and WUXGA native resolutions
  - Up to 6000 lumens
  - Extensive input panel, including HDMI and DisplayPort
  - Variable audio out
  - HQV™ video processing
  - 3D Reform
  - Stacking Correction Tool
  - Geometric correction
  - Edge blending
  - Windows Network Projector and Remote Desktop
  - Integrated LAN connection
  - 10W speaker

New Features “PA Series”

- HDMI input
- DisplayPort input
- 3000/4000 hour Lamp life
- 4000 hour Filter life
- Selectable Eco-Mode
- 10W Audio
- RS232 with less than 1W Standby
- Wireless LAN Connection IEEE801.11b/g/n (optional)
- USB Viewer
- Crestron Roomview
- Virtual Remote™
- Closed Captioning
- Variable Audio Out
- Horizontal & Vertical Lens Shift
- Bayonet Style Lenses (5 Choices)
- Networking Features
    - Image Express 2.0 (NEC exclusive software)
    - Desktop Control (NEC exclusive software)
    - Windows Network Projector
    - Windows Remote Desktop
    - Windows Network Drive
    - Windows Media Connect
    - Image Express Lite
        - Geometric Correction (Cornerstone) using PC Software
- HQV™ Video Processing

PA Series

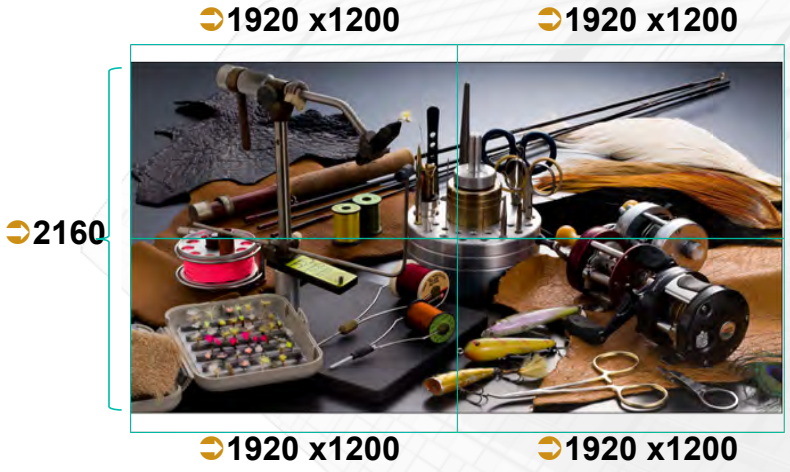
HDMI
DisplayPort
Dual VGA
5BNC
BNC (composite)
S-Video
USB
LAN
Monitor Out
Wireless LAN (optional)

Features next generation “PA Series”

- *Model names:NP-PA622U, PA672W, PA722X*
- *LCD*
- *HD BaseT*
- *Contrast Ratio : 5,000:1 (at High Bright Mode)*
- *Lamp Life: 10,000 hours*
- *20W Speaker*
- *Portrait Mode*
- *Dual HDMI (3D support)*
- *HDMI loop out*
- *Access Point (AP) for direct connection to iPad etc.*
- *Multi Display Support (Industry first Daisy Chain PJ) - See next page*
- *Uses existing lenses with the addition of a 6th lens*
  - *NP30ZL – 0.82-1.02:1*

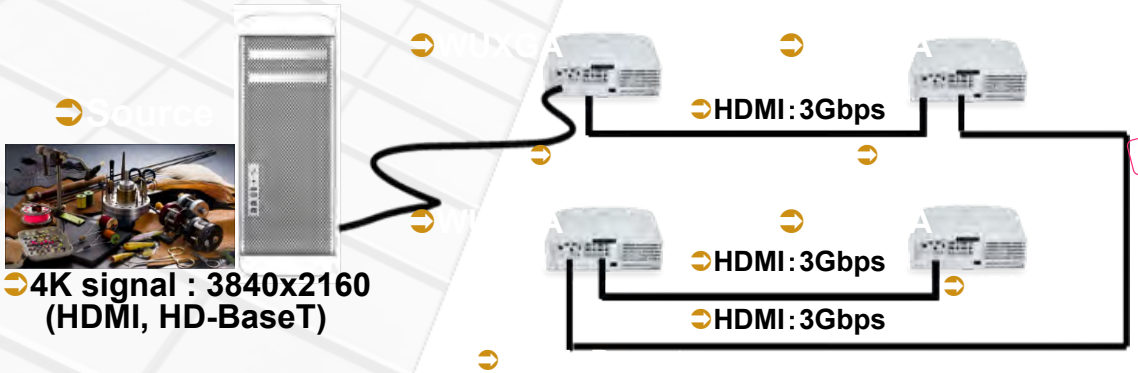
One of New Function for New PA series

Screen Splitter (Multi Display) by Daisy Chain



Max: 4K Resolution

Max:4units



4K signal : 3840x2160
(HDMI, HD-BaseT)

No.1 Integration Projector!

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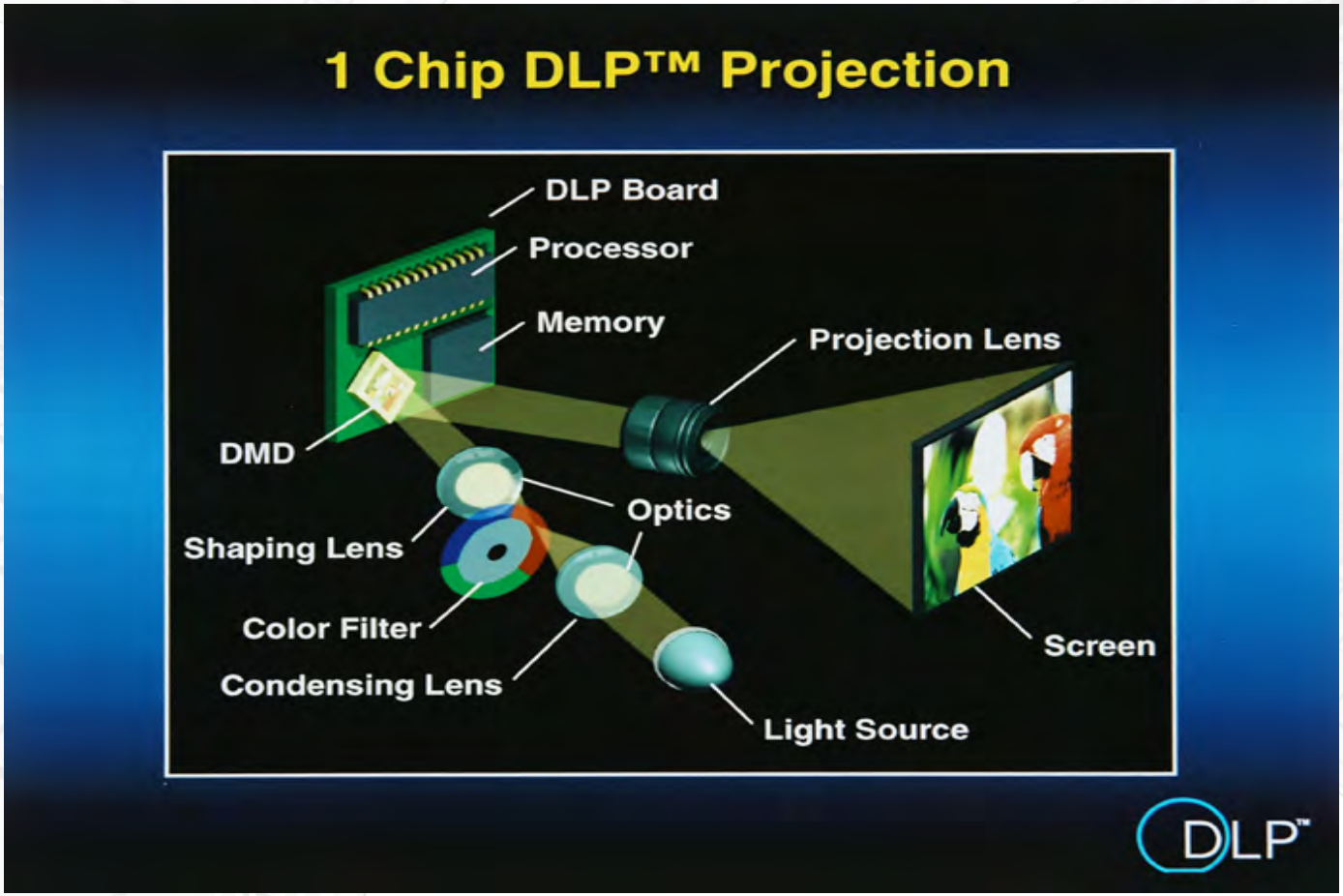
1 Chip DLP™ Projection
DLP Board
Processor
Memory
Projection Lens
DMD
Optics
Shaping Lens
Color Filter
Condensing Lens
Screen
Light Source
DLP™

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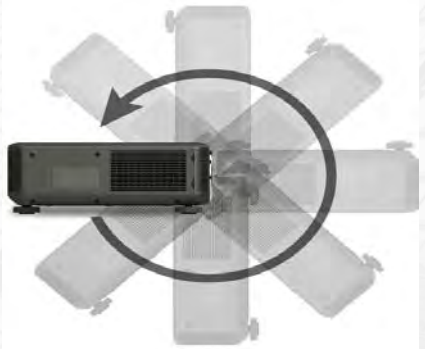
PX Series – High-Performance, Bright

- **Models**
  - NP-PX700W
  - NP-PX750U
  - NP-PX800X
- **Market**
  - Higher education facilities
  - Corporate facilities
  - House of worship
- **Key Benefits**
  - XGA, WXGA and WUXGA native resolutions
  - Up to 8000 lumens
  - Extensive input panel, including HDMI and DisplayPort
  - OPS input slot
  - Dual lamp
  - DLP
  - HQV™ video processing
  - Stacking Correction Tool
  - Geometric correction
  - Edge blending
  - Crestron RoomView Connected™
  - Interchangeable bayonet lenses
  - Power lens controls, including lens memory

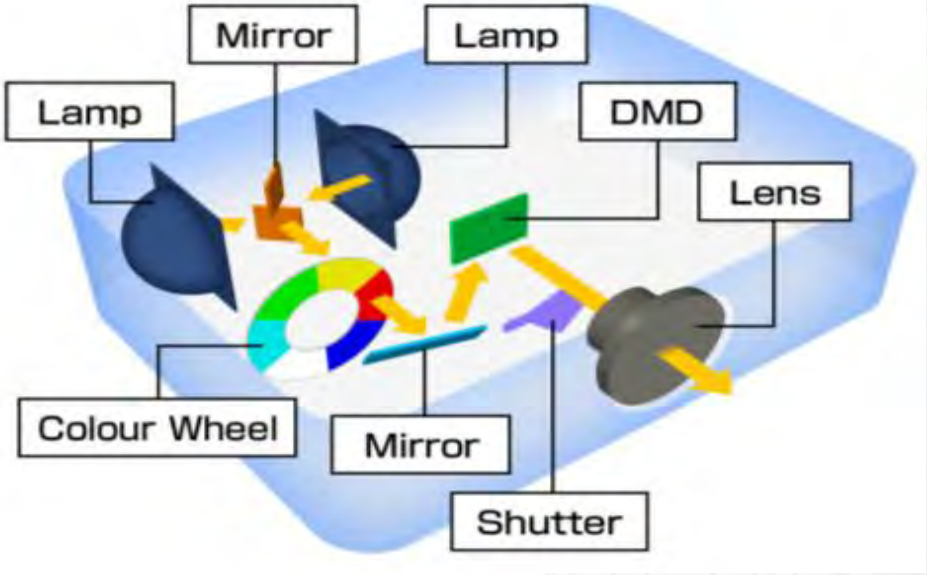


New Features “PX Series”

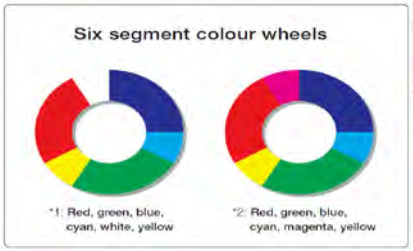
- HDMI input
- DisplayPort input
- 24/7 Operation
- 2000/2500 hour Lamp life
- 2500 hour Filter life
- Selectable Eco-Mode
- RS232 with less than 1W Standby
- Wireless LAN Connection IEEE801.11b/g/n (optional)
- USB Viewer
- Crestron Roomview
- Virtual Remote™
- Closed Captioning
- Lens Memory
- Horizontal & Vertical Lens Shift
- Bayonet Style Lenses (6 Choices)
- Networking Features
    - Image Express 2.0 (NEC exclusive software)
    - Desktop Control (NEC exclusive software)
    - Windows Network Projector
    - Windows Remote Desktop
    - Windows Network Drive
    - Windows Media Connect
    - Image Express Lite
        - Geometric Correction (Cornerstone) using PC Software
- HQV™ Video Processing

Stacking Correction Tool
Windows Network Drive Function
Windows Media Connect Function
Edge Blending

New Features Durable Two Lamp System for 24/7 usage



- Two Lamps for best reliability
- Extreme filter life of 10.000h
- Second Color Wheel in the box for high color applications
- Easy replacement of Colour Wheel
- Dual lamp technology allows for both lamps to run simultaneously achieving maximum brightness.
- Dual lamp technology also provides built in redundancy should one lamp fail.



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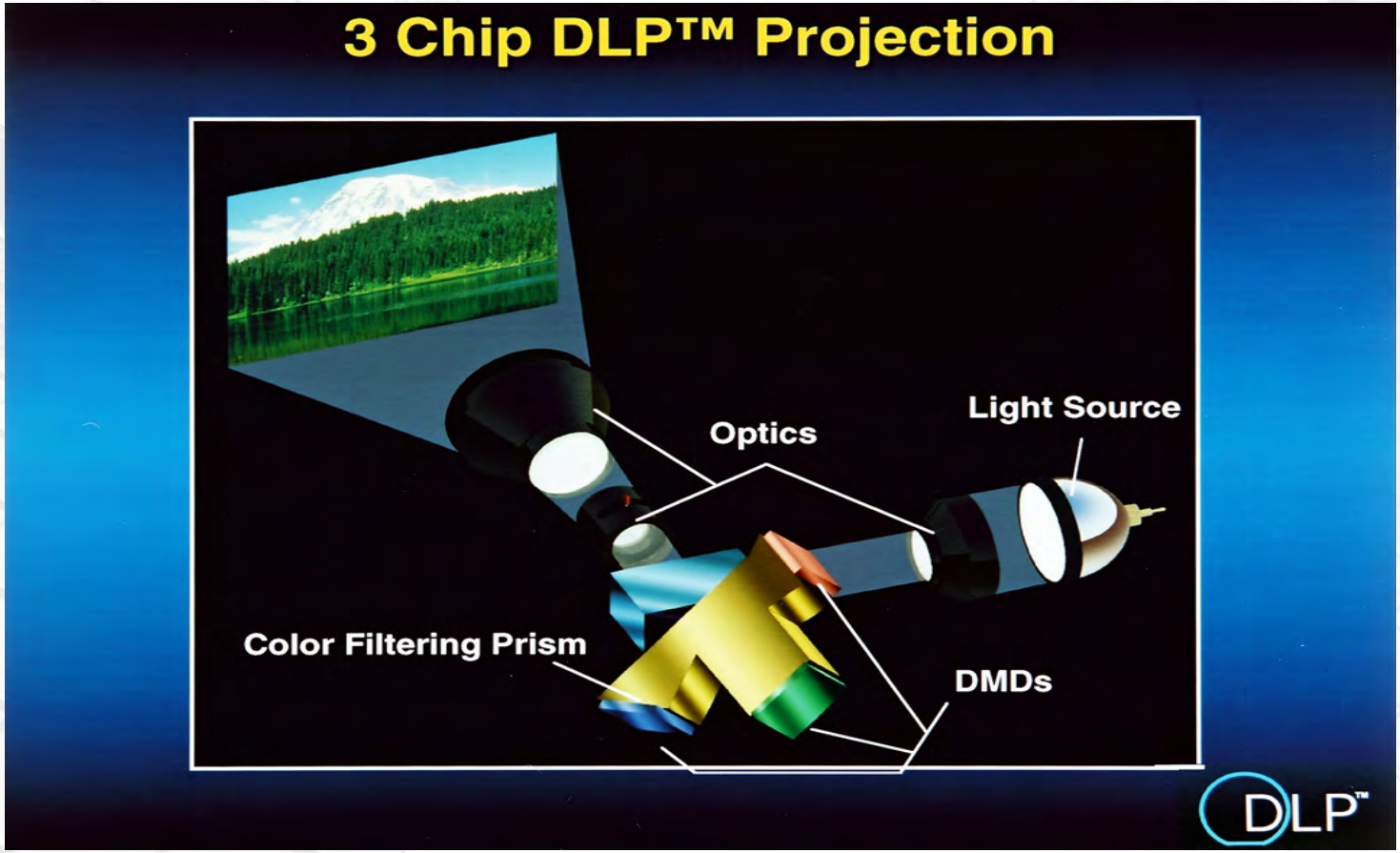
3 Chip DLP™ Projection
Optics
Light Source
Color Filtering Prism
DMDs
DLP™

PH Series – High-Performance, High-Bright

- **Models**
  - NP-PH1000U
  - NP-PH1400U
- **Market**
  - Higher education facilities
  - Rental and staging
  - House of worship
- **Key Benefits**
  - WUXGA native resolution
  - 11,000 lumens (NP1000U)
  - 14,000 lumens (NP1400U)
  - Extensive input panel, including HDMI and DisplayPort
  - OPS input slot
  - 3-chip DLP
  - Dual lamps
  - HQV™ video processing
  - Stacking Correction Tool
  - Geometric correction
  - Edge blending
  - Interchangeable bayonet lenses
  - Power lens controls, including lens memory

New Features “PH Series”

- HDMI input
- DisplayPort input
- 2000/2500 hour Lamp life
- 2500 hour Filter life
- Selectable Eco-Mode
- RS232 with less than 1W Standby
- Wireless LAN Connection IEEE801.11b/g/n (optional)
- USB Viewer
- Crestron Roomview
- Virtual Remote™
- Closed Captioning
- Lens Memory
- Horizontal & Vertical Lens Shift
- Bayonet Style Lenses (5 Choices)
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    - Image Express 2.0
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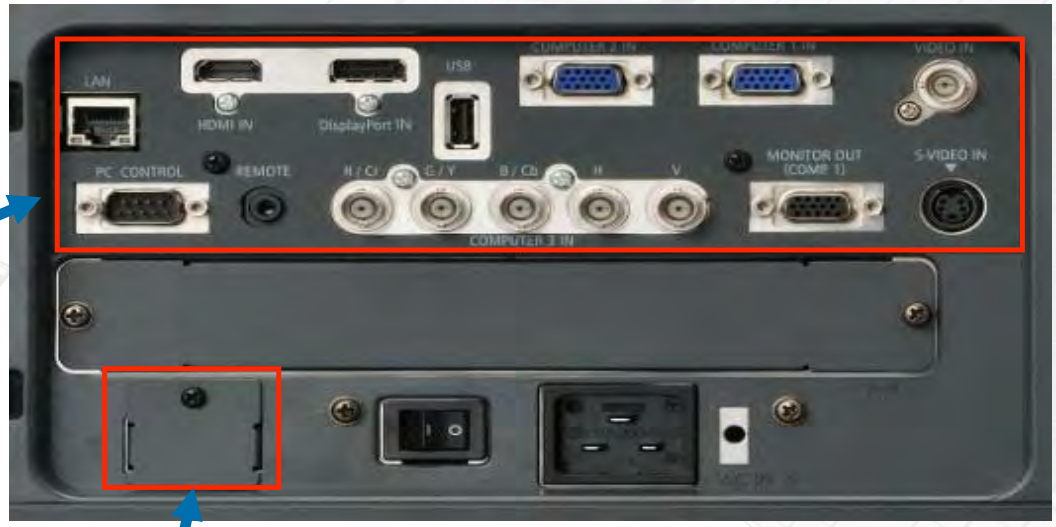
    - Windows Remote Desktop
    - Windows Network Drive
    - Windows Media Connect
    - Image Express Lite
        - Geometric Correction (Cornerstone) using PC Software
- HQV™ Video Processing

PX and PH Series

HDMI
DisplayPort
Dual VGA
5BNC
BNC (composite)
S-Video
USB
LAN
Monitor Out
Wireless LAN adapter (optional)



PX and PH Series

Option slot based on OPS standard

Worldwide 1st projector supporting OPS standard modules for highest flexibility

1.5G HD/SD-SDI

OPS-SBC

DVI, other new I/F, etc

OPS-Open Pluggable Specification

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HQV Video Processing Explained

- Pixel Based Motion Adaptive De-Interlacing
  - Motion is identified at the pixel level rather than the field level (competitors)
  - Pixel level is looked at over a period of four fields(2 current, 2 previous) for SD and HD signals resulting is better motion detection
  - Diagonal Interpolation to remove “jaggies”

See Chapter 6 of HQV Benchmark DVD

PH1000U

w/o HQV™

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HQV Video Processing Explained

- Detail Enhancement
- HQV detail enhancement improves edge contrast without causing ringing or haloing artifacts
  - The result is an image that shows greater depth and contrast with crisp clean edges
    - See Chapter 5 of HQV Benchmark DVD

PH1000U

w/o HQV™

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HQV Video Processing Explained

- 10-bit processing, scaling & warping
  - All processing, scaling and warping is done in 10-bits per channel for full 4:4:4 color processing
  - The end result is finer detail and greater dynamic color range that is found in the original source

- 1024-tap scaling
  - Scaling involves either down rezzing or up rezzing the source resolution to the output resolution of a display
  - Evaluating 1024 surrounding pixels from the original pixel results in the best image quality without sacrificing detail and sharp edges
    - competitors typically use only a 4-tap system (4 pixels adjacent to a given pixel)
  - 1024-tap scaling along with detail enhancement results in HD quality from standard definition material

Contrast Enhancement Technology

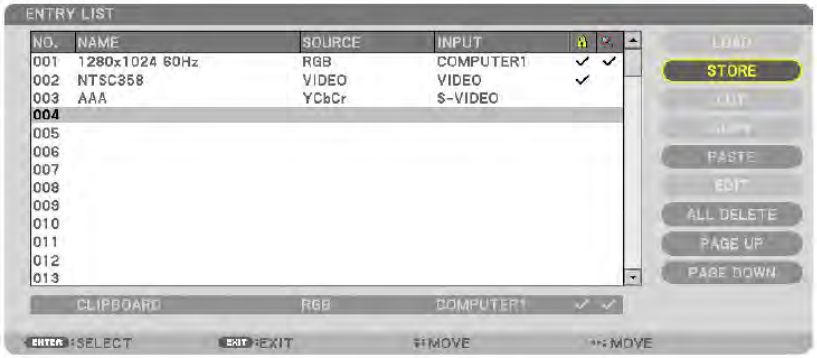
- Higher contrast makes shades sharper and reproduces details clearly.
- SweetVision is available even when the input signal is
- SDTV(I&P), HDTV(720p, 1080i, 1080p), PC(up to UXGA).

After correction

Before correction

NEC Key Features

Entry List

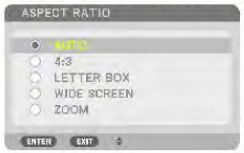


Aspect Ratio

For Computer signal

For Component/Video/S-Video signals

When the screen type is set to 4:3



When the screen type is set to 16:9 or 16:10

Screen Type

INSTALLATION (1)	ORIENTATION		DESKTOP FRONT	DESKTOP FRONT, CEILING REAR, DESKTOP REAR, CEILING FRONT
	SCREEN	SCREEN TYPE	4:3 SCREEN	4:3 SCREEN, 16:9 SCREEN, 16:10 SCREEN
		POSITION (PA600X/PA500X)	0	
	GEOMETRIC CORRECTION		OFF	OFF, 1, 2, 3
	MULTI-SCREEN COMP.	MODE	OFF	OFF, ON
		CONTRAST	0	
		BRIGHTNESS	0	
	REF. WHITE BALANCE	CONTRAST R	0	
		CONTRAST G	0	
		CONTRAST B	0	
		BRIGHTNESS R	0	
		BRIGHTNESS G	0	
		BRIGHTNESS B	0	
		UNIFORMITY R	0	
		UNIFORMITY B	0	
	STATIC CONVERGENCE (PA500U only)	HORIZONTAL R	0	
		HORIZONTAL G	0	
		HORIZONTAL B	0	
		VERTICAL R	0	
		VERTICAL R	0	
		VERTICAL B	0	

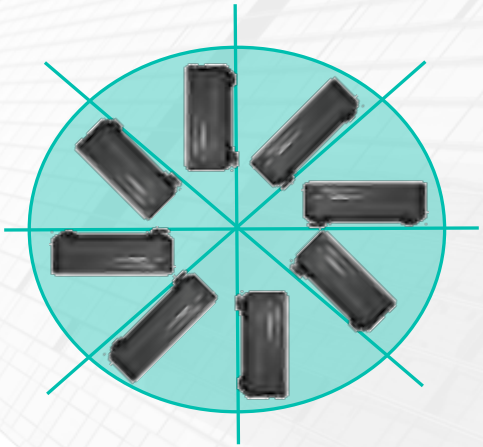
Cornerstone

Selecting Cornerstone Mode [CORNERSTONE]

Tilt free (360 degree / Vertical)

360°Tilt free function will be able to expand your installation location when projected to floor and tilt up.

This function will be able to use event, museum and so on.

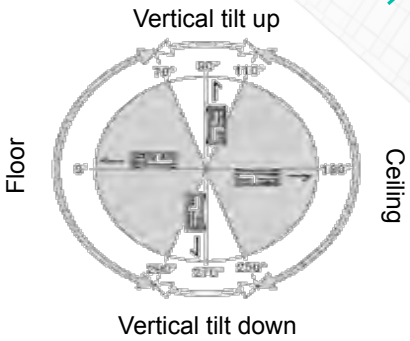


F/W update is required for previous PX750U.

Fan setting require when you installed other than floor setting.

[FAN MODE]

MODE	AUTO	The built-in fans automatically run at a variable speed according to the internal temperature.
	HIGH	The built-in fans run at high speed.
	HIGH ALTITUDE	The built-in fans run at a high speed. Select this option when using the projector at altitudes approximately 5500 feet/1600 meters or higher.
SETTING	FLOOR	Select one of the four options according to the installation angle of the Projector as shown in the drawing below.
	CEILING	
	VERTICAL TILT UP	
	VERTICAL TILT DOWN	

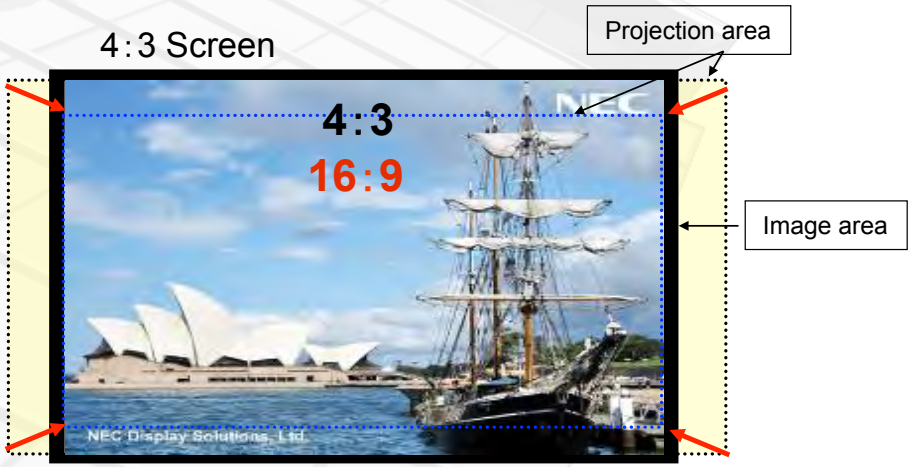


Lens memory function. Seamless switching

Lens memory function

- If you use different screens for each input signal, PJ can automatically adjust the lens settings, Focus/Zoom/Lens-shift
- Lens memory function can set per each input signal and physical input

Available on PX750U / PH1000U



Seamless switch function

- When inputs are switched, the projector changes image without going black. This is very good for Rental/ Staging applications

Available on WUXGA PH1000U/PX750U

No seamless switch

With seamless switch

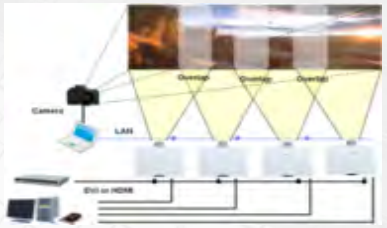
Advanced installation

Easy Stacking Correction

- Able to project maximum of 4 projectors at a time
- Easily project 44000lm using 4 PH1000U projectors
- Projected image is not to be obstructed even if someone Walks in front of one of the projectors

Multi-Screen function

- Easy Edge blending functionality with the use of a camera and original NEC software
- Limitation - Maximum of 4 projectors and projectors native resolution.



Geometric Correction Tool (GCT)

- The Geometric Correction Tool software enables the projection of images from a PC to screen on an angle and to screens with complex shapes.

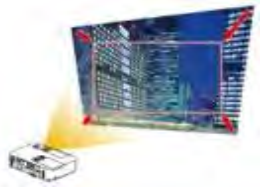
Spherical

V cylindrical

H cylindrical

V cylindrical

H cylindrical



Software download
http://www.necdisplay.com/projector-software

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Easy Stacking Setup

Removable Stacking stands integrated as standard

2 optical stack possible

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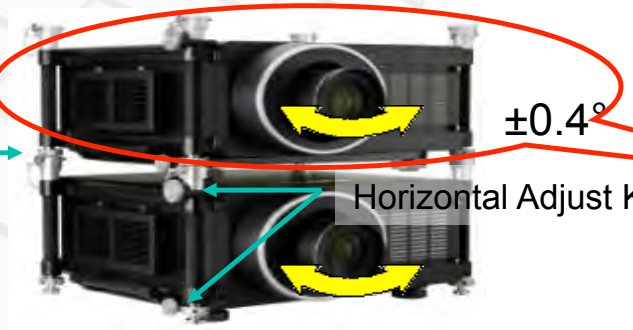
Easy Stacking Setup

Stacking column

Front:2 column / Rear:2column

Every column can adjust projector height.

2 stack possible



Recommended lens family.

- NP26ZL
- NP27ZL
- NP28ZL
- NP29ZL

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NEC Projector User Supportware

Multi Screen Tool

- Title: Edge Blending using the Multi-Screen Tool
- Link to: http://www.youtube.com/watch?v=RL-rQoNuFWU

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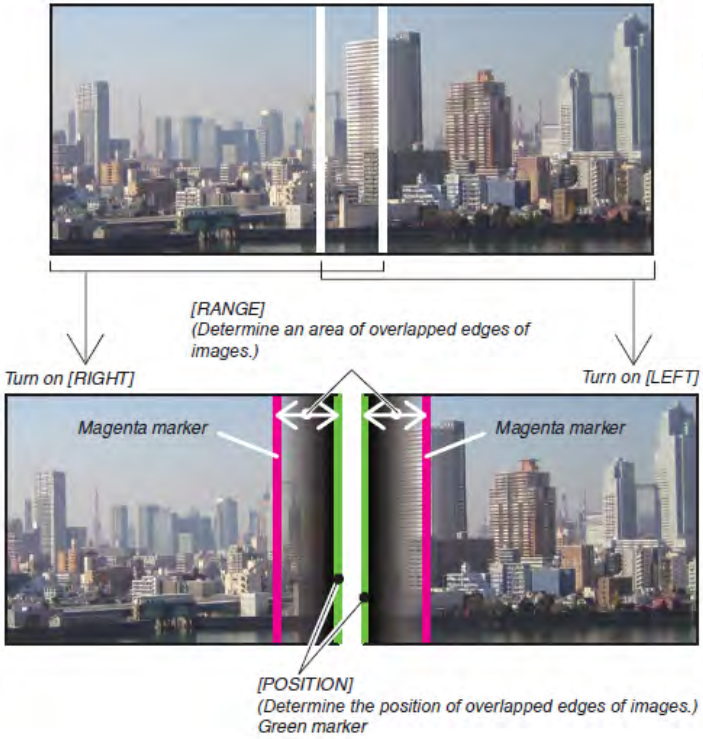
Another option - Manual edge blending PX/PH series

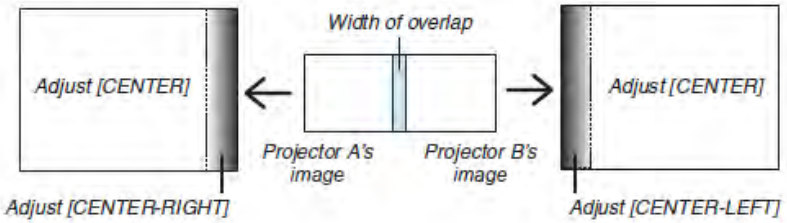
Full resolution Using Matrox Dual Head Graphics Card

Another option - Manual edge blending PX/PH series

Manual Edge Blending



Example: Adjusting the Black Level when placing two projectors side by side



Unlimited number of projectors can be used

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THANK YOU