

Orchestrating a brighter world

NEC

A high-quality filter-free LCD laser-phosphor projector with excellent quietness

PE455UL / PE455WL / PE505XL



- Dispersion: Separation of light into its constituent colors.
Spectrum: Band of colors obtained when light undergoes dispersion.
Angular dispersion, θ



Angular dispersion, $\theta = \delta_v - \delta_r$
 $= A(\mu_v - 1) - A(\mu_r - 1)$
 depends on:
 $= A(\mu_v - \mu_r)$
 Angle of prism Difference in μ_v and μ_r .

Dispersion of Light

The fact that refractive indices differ for each wavelength of light produces an effect called **dispersion**. This can be seen by allowing a beam of white light into a triangular prism made of glass. White light entering such a prism will be refracted in the prism by different angles depending on the wavelength of the light.

$$\frac{n_{\text{prism}}}{n_{\text{air}}} = \frac{\sin \frac{1}{2}(\sigma + \delta)}{\sin \frac{1}{2}\sigma}$$

300	Ultraviolet	10^{-8}	Gamma rays
400	Violet	10^{-7}	X-rays
500	Blue	10^{-6}	Alpha rays
600	Green	10^{-5}	Ultraviolet
700	Orange	10^{-4}	Infrared
800	Red	10^{-3}	Radio waves
1000	White light	10^2	Long Radio waves

MultiPresenter

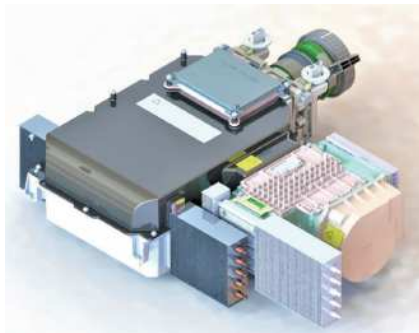
PE455UL

Enjoy peace of mind with high dustproof performance and broad connectivity, whilst enjoying impressive images and quietness.

Versatile, maintenance-free, entry-level installation projectors with excellent quietness

Filter-free Structure with NEC's Original Cooling System

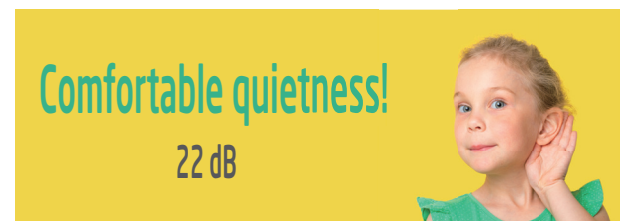
High dustproof performance is achieved by NEC's proprietary sealed jet impingement cooling structure. Due to its excellent dustproof performance, this projector does not have the cumbersome filters that ordinary LCD projectors require. The new laser-based LCD projector offers better TCO (total cost of ownership) with less maintenance.



NEC's Unique Sealed LCD Panel Cooling System

Super Silent Design Utilising a Sealed Structure

The unique cooling system not only improves the dustproof performance but also reduces the noise of the fan. This quiet design achieves excellent quietness of 22 dB in ECO mode. Even in a very quiet meeting room or classroom, the presence of the projector is not felt.



A Long-life Laser Diode is Provided in the Light Module

Advanced laser technology delivers a reliable light source up to 20,000 hours.

Self Colour Correction

This function compensates for the natural colour shift that occurs with age and adjusts to natural and suitable colours automatically according to the number of hours used.

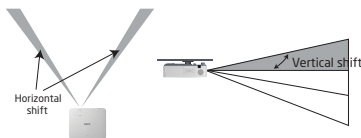
Maintains the Set Brightness for a Long Time

The projector is equipped with a "constant brightness mode" that detects changes in brightness due to aging and automatically adjusts the output to keep the brightness constant. This makes it possible to project with stable brightness for a long time.

Advanced Installation Functions and Connectivity

Lens Shift

Lens shift provides greater flexibility when determining the installation location.



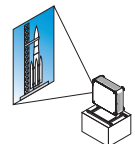
Tilt-free

The projector can be rotated freely (360°) to orient the image depending on the installation requirements.



Portrait mode

Allows the projector to be rotated (and screen if necessary) to a vertical alignment so that portrait content can be viewed without black bars on the sides when landscape mode is used.



Support for 4K Input

The built-in HDMI input terminal supports up to 4K video for display of ultrahigh resolution video.

Dual HDMI Inputs

The wide selection of inputs includes HDMI with HDCP for connecting to high-definition sources such as Blu-ray players, cable boxes, satellite receivers and personal computers.



Advanced Networking Capabilities

MultiPresenter

This projector is compatible with the NEC MultiPresenter application, so multi-screen projection is possible via the network (wired LAN / wireless LAN). Ideal for effortlessly sharing content in corporate meeting rooms or classrooms

MultiPresenter



Multi-screen Projection Function^{*1}

The multi-screen projection function allows for the sharing of screens of multiple devices on various split-screen displays via a wireless or wired LAN. Display information from up to 50¹² PCs, tablet PCs, smart phones, and other network connected devices on a multi-screen display of up to 16 screens. Easily share screens and information regardless of device or operating system.

Intelligent connecting view



Network setting menu

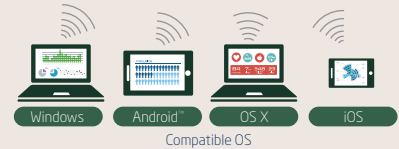


Projection of materials of attendees on a multi-screen display. Input a 4-digit number (PIN code) for a network connection.



*1. Requires the optional wireless LAN module for wireless connection. PCs, smart phones and tablets require the download and installation of our MultiPresenter software.

*2. The connection of 50 devices to the network requires construction of a wireless LAN environment, such as the use of a separate access point.



Other Useful Functions and Features

16 Watt Built-in Speaker

The powerful 16-watt speaker provides sufficient volume in classrooms and meeting rooms.

Seamless Switching Function for Smoother Image Change

When the input signal is switched, the image displayed before switching is retained so that the new image can be displayed without a break.

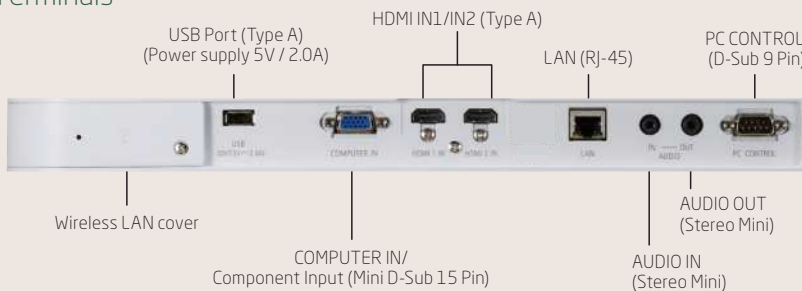
- [VIEWER] function to project still images saved on USB storage
- Compatible with wired LAN / wireless LAN (option)
- Quick power-on, Quick power-off supported
- Quick start and Direct power-off / Quick power-off
- Provides 2.0 A USB current for third-party wireless dongles
- Keystone correction
+/- 30 degree Horizontal / Vertical keystone, Cornerstone, Pincushion correction supported
- PIN security / Control panel lock / Security bar / Security slot
- Virtual remote tool
- Wall colour correction
- DICOM simulation

Network Control

- NaViSet Administrator 2
- PC control
- Alert mail
- CRESTRON ROOMVIEW with emergency function and Extron XTP compatibility
- AMX BEACON
- PJLink
- HTTP server (projector adjustment)



Terminals



PE455UL

4,500 lumens WUXGA 9.4 kg

PE455WL

4,500 lumens WXGA 9.3 kg

PE505XL

5,000 lumens XGA 9.3 kg

Specifications

Model	NP-PE455UL	NP-PE455WL	NP-PE505XL	
Method	Three primary colour liquid crystal shutter projection			
Specifications of main parts				
Liquid crystal panel	Size	0.64 inch LCD with MLA × 3		
	Pixels ^{*1}	2,304,000 (1,920 dots × 1200 lines)	1,024,000 (1,280 dots × 800 lines)	786,432 (1,024 dots × 768 lines)
Projection lenses	Zoom	Manual		
	Focus	Manual		
	Zoom ratio	1.6	1.7	1.7
	Throw ratio	1.2 to 2.0	1.2 to 2.1	1.3 to 2.2
	F-number/focal length	F = 1.5 to 2.1 f = 17.2 mm to 27.6 mm	F = 1.7 to 2.2 f = 17.4 mm to 29.0 mm	
	Lens shifting	Manual (H = +/-29% / V = 0% to +60%)	Manual (H = +/-26% / V = 0% to +55%)	Manual (H = +/-28% / V = 0% to +50%)
Light source	Blue Laser diode			
Light source (laser diode) life ^{*2}	20,000H			
Optical unit	Integrator, dichroic mirror, XDP			
Light output ^{*3,4}	ECO MODE [OFF]	4,500 lm		5,000 lm
	ECO MODE [ECO]	Approx. 60%	Approx. 67%	Approx. 60%
	ECO MODE [LONG LIFE]	Approx. 50%	Approx. 56%	Approx. 50%
Contrast ratio ^{*4} (all white/all black)	450,000 : 1 with Light Adjust		500,000 : 1 with Light Adjust	
Image size	25 to 300 inches			
Colour reproduction	10-bit signal processing, 1.07 billion colours (Viewer, Network, 16.7 million colours)			
Quietness (ECO MODE [ECO] / ECO MODE [OFF])	22 dB / 24 dB to 27 dB (high bright)			
Synchronisation range	Horizontal	15 to 100 kHz (RGB: 24 kHz or over)		
	Vertical	50 to 120 Hz		
Max. display resolution (horizontal × vertical)	Up to 4K@30 Hz (3,840 × 2,160) with Advanced AccuBlend, Pixel clock frequency: less than 300 MHz			
Keystone correction	Horizontal	Manual, approx. ± 30 degrees max.		
	Vertical	Manual, approx. ± 30 degrees max.		
Input/output connectors				
Computer/component	Video input	Mini D-Sub 15-pin × 1		
	Audio input	Stereo mini jack × 1		
HDMI	Audio output	Stereo mini jack × 1 (Selected from: Computer / HDMI / LAN)		
	Video input	Type A HDMI connector × 2		
	Audio input	Yes		
PC control connector	D-Sub 9-pin × 1 (4800/9600/19200/38400 bps)			
USB port	USB type A × 1 for USB (5.0 V / 2.0 A power supply)			
Ethernet/LAN	RJ-45 × 1			
Wireless LAN Port (Optional)	USB × 1			
Built-in speaker	16 W × 1			
Usage environment	Operating temperature: 5 to 40°C [°] , Operating humidity: 20 to 80% (with no condensation)			
	Storage temperature: -10 to 50°C, Storage humidity: 20 to 80% (with no condensation)			
	Operating altitude: 0 to 2,600 m (1,600 to 2,600 m: Set [FAN MODE] to [HIGH ALUTITUDE])			
Power supply	100 - 240 V AC, 50/60 Hz			
Power consumption	ECO MODE [OFF]	316 W (100 to 130 V) 308 W (200 to 240 V)	279 W (100 to 130 V) 276 W (200 to 240 V)	305 W (100 to 130 V) 298 W (200 to 240 V)
	ECO MODE [ECO]	226 W (100 to 130 V) 222 W (200 to 240 V)	216 W (100 to 130 V) 215 W (200 to 240 V)	217 W (100 to 130 V) 215 W (200 to 240 V)
		ECO MODE [LONG LIFE]	203 W (100 to 130 V) 201 W (200 to 240 V)	191 W (100 to 130 V) 191 W (200 to 240 V)
	NETWORK STANDBY	1.6 W (100 to 130 V) / 1.8 W (200 to 240 V)		
	STANDBY [®]	0.13 W (100 to 130 V) / 0.19 W (200 to 240 V)		
Rated input current	4.9 A to 2.0 A	4.5 A to 1.8 A	4.8 A to 2.0 A	
Dimensions (W × H × D)	480 × 122 × 407 mm (Net dimensions, not including protruding parts), 591 × 259 × 491 mm (Gross dimensions)			
Weight (Net weight / gross weight)	9.4 kg / 12.5 kg	9.3 kg / 12.4 kg		

*1: Effective pixels are more than 99.99%. *2: Time at which the laser light source is at half brightness; not a guaranteed time. *3: This is the light output value (lumens) when [ECO MODE] is set to [OFF] and [PRESET] is set to [HIGH-BRIGHT]. The brightness decreases when [ECO MODE] is set to [ECO] or [LONG LIFE] ([ECO]: about 60%, [LONG LIFE]: about 50%). If any other mode is selected as the [PRESET] mode, the light output value may drop slightly. *4: Compliant with ISO21118-2012.
 *5: 35 to 40°C - "Forced eco mode". *6: Value as measured by NEC. All wired network ports are connected and active.
 • These specifications and the product's design are subject to change without notice.

Remote control



(Included accessory)

Options

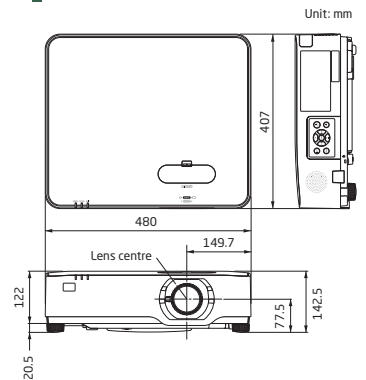
Wireless LAN unit NP05LM1-5*

Allows you to transmit data wirelessly over your network when you insert it into the USB (Wireless LAN) port.



*The last digit may vary depending on the country of destination.

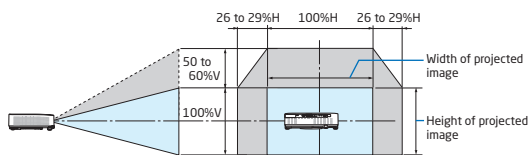
Cabinet dimensions



Lens shift range

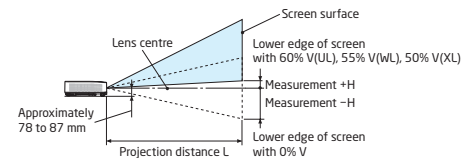
Lens shift mechanism for adjusting the position of the projected image easily

Lens shifting range:
 Vertical direction: 0% to +60% (PE455UL), 0% to 55% (PE455WL), 0% to 50% (PE505XL)
 Horizontal direction: ±29% (PE455UL), ±26% (PE455WL), ±28% (PE505XL)



Legend: V "Vertical" refers to the screen height and H "Horizontal" refers to the screen width. The lens shift range is expressed as a ratio of height and width, respectively.

Throw distance and screen size



Screen size	Screen width (cm)	Screen height (cm)	WUXGA (16:10)				WXGA (16:10)			
			PE455UL		PE455WL		PE455UL		PE455WL	
			Throw distance L (cm)	Height H (cm)	Throw distance L (cm)	Height H (cm)	Throw distance L (cm)	Height H (cm)	Throw distance L (cm)	Height H (cm)
30"	64.6	40.4	76.5	125.8	-20.2 to 4.0	77.9	132.0	-20.2 to 2.0		
40"	86.2	53.8	103.1	168.9	-26.9 to 5.4	105.2	177.3	-26.9 to 2.7		
60"	129.2	80.8	156.4	255.0	-40.4 to 8.1	159.8	267.9	-40.4 to 4.0		
80"	172.3	107.7	209.8	341.1	-53.8 to 10.8	214.4	358.5	-53.8 to 5.7		
100"	215.4	134.6	263.1	427.3	-67.3 to 13.5	269.0	449.1	-67.3 to 6.7		
120"	258.5	161.5	316.4	513.4	-80.8 to 16.2	323.6	539.7	-80.8 to 8.1		
150"	323.1	201.9	396.4	642.6	-101.0 to 20.2	405.5	675.6	-101.0 to 10.1		
180"	387.7	242.3	476.4	771.8	-121.2 to 24.2	487.3	811.6	-121.2 to 12.1		
200"	430.8	269.2	529.7	857.9	-134.6 to 26.9	541.9	902.2	-134.6 to 13.5		
240"	516.9	323.1	636.4	1030.1	-161.5 to 32.3	651.1	1083.4	-161.5 to 16.2		
270"	581.6	363.5	716.4	1159.3	-181.7 to 36.3	733.0	1219.3	-181.7 to 18.2		
300"	646.2	403.9	796.4	1288.5	-201.9 to 40.4	814.8	1355.2	-201.9 to 20.2		

* Stated throw distances are standard values. * The values in the tables are design values and may vary.

Screen size	Screen width (cm)	Screen height (cm)	XGA (4:3)			
			PE505XL		PE505XL	
			Throw distance L (cm)	Height H (cm)	Throw distance L (cm)	Height H (cm)
30"	61.0	45.7	79.5	134.6	-22.9 to 0	
40"	81.3	61.0	107.3	180.7	-30.5 to 0	
60"	121.9	91.4	162.9	273.0	-45.7 to 0	
80"	162.6	121.9	218.5	365.4	-61.0 to 0	
100"	203.2	152.4	274.1	457.7	-76.2 to 0	
120"	243.8	182.9	329.8	550.0	-91.4 to 0	
150"	304.8	228.6	413.2	688.5	-114.3 to 0	
180"	365.8	274.3	496.6	826.9	-137.2 to 0	
200"	406.4	304.8	552.2	919.3	-152.4 to 0	
240"	487.7	365.8	663.4	1103.9	-182.9 to 0	
270"	548.6	411.5	746.9	1242.4	-205.7 to 0	
300"	609.6	457.2	830.3	1380.8	-228.6 to 0	



- This product is classified as Class 1 of IEC 60825-1 Third edition 2014-05 and RG2 of IEC 62471-5 First edition 2015-06. This product is equipped with a laser module. DO NOT STARE INTO THE LENS WHILE IN USE.
- The projector can be unplugged during its cool down period after it is turned off. Parts of the projector will become heated during operation. Use caution when picking up the projector immediately after it has been operating.
- Use caution when putting the projector in the soft case immediately after the projector has been operating. The projector cabinet is hot.