

PX2201UL Installation Guide

Rev 1.0

Desktop and Ceiling Mount

Contents

| | |
|--|-------|
| Product Description, Lens Specs, Screen/Aspect Ratio | |
| Notes | Pg 1 |
| Distance Charts and Formulas | Pg 2 |
| Ceiling Mount/Desktop Installation | Pg 3 |
| Lens Shift Adjustable Range | Pg 4 |
| Power Cord | Pg 5 |
| Cabinet Dimensions | Pg 6 |
| Cabinet Dimensions | Pg 7 |
| Ceiling Mount | Pg 8 |
| Optional Lens Dimensions | Pg 9 |
| Ventilation Requirements/Portrait Requirements | Pg 10 |
| Regulatory Labels | Pg 11 |
| Hazard Zone | Pg 12 |
| Input Panel and Button Panel | Pg 13 |
| Control Codes | Pg 14 |



Product Description

| | | |
|---------------------------|--|--|
| Type: | 1 chip DMD Reflection Type 0.96 in. 2x LVDS DMD | Dimensions: 20.9" (W) x 10.8" (H) x 29.4" (D) Weight: 112 lbs. / 51kg |
| Resolution: | 1920 x 1200 (16:10) | Brightness: 21,500 Lumens |
| Fan Noise: | 45 dB / 43dB @ 1 meter | |
| Power Consumption: | 1755W (max) | BTU's: 6535 BTU/hour |

Network Ready, integrated wired and wireless adapter
Powered: Lens Shift, Horizontal & Vertical /Zoom/ Focus

Lens Specifications

| | | | |
|----------------|--|---|---------------------------------|
| NP45ZL: | Throw Ratio: 0.9 - 1.2:1 Screen Sizes: 50"-500" | Focal Length: 19.34 – 25.76mm F/#: 2.2 - 2.53 | Weight: 6.3lbs. / 2.85kg |
| NP46ZL: | Throw Ratio: 1.2 – 1.56:1 Screen Sizes: 50-500" | Focal Length: 25.69 – 33.22mm F/#: 2.18 - 2.66 | Weight: 4.5bs. / 2.02kg |
| NP47ZL: | Throw Ratio: 1.5 – 2.0:1 Screen Sizes: 50-500" | Focal Length: 31.90 – 45.20mm F/#: 2.17 – 2.65 | Weight: 4.5lbs. / 2.02kg |
| NP48ZL: | Throw Ratio: 2.0 – 4.0:1 Screen Sizes: 50"-500" | Focal Length: 45.60 – 84.80mm F/#: 2.17 - 2.65 | Weight: 5.9lbs. / 2.66kg |
| NP49ZL: | Throw Ratio: 4.0 – 7.0:1 Screen Sizes: 50"-500" | Focal Length: 83.93 -146.85mm F/#: 2.2 - 2.57 | Weight: 4.4lbs. / 1.98kg |

Screen/Aspect Ratio

4:3, 16:9 and 16:10 screens are fully supported with proper aspect ratio control for both type sources using NEC developed scaling technology. Menu selections have settings for each screen type and aspect ratio control for each source type.

Notes

- For screen sizes not indicated on the projection tables, use the formulas below.
If the figures on the tables do not match the results of formulas, use the figures in the table.
- Distances are in inches, for millimeters multiply by 25.4.
- Distances may vary ±5%.

PX2201UL Installation Guide

Desktop and Ceiling Mount

Rev 1.0

Formulas: 16:10 Aspect Ratio (WUXGA)

The Projection Formulas use the image width for calculation. Image width is the same for all aspect ratios, only vertical image size varies. For proper projector placement, determine the image width for a desired screen size. Use the Screen Formulas below to calculate all screen dimensions. Plug in the image width for "W" in the Projection Formulas. Refer to the diagrams and charts for popular screen sizes on page 2 and 3:

Projection Formulas:

- NP45ZL: C(Wide) = 0.943W - 3.632 ----- C(Tele) = 1.259W - 3.717
- NP46ZL: C(Wide) = 1.264W - 5.446 ----- C(Tele) = 1.634W - 4.902
- NP47ZL: C(Wide) = 1.531W + 3.074 ----- C(Tele) = 2.035W - 2.953
- NP48ZL: C(Wide) = 1.926W + 6.260 ----- C(Tele) = 3.866W + 5.280
- NP49ZL: C(Wide) = 3.929W + 6.040 ----- C(Tele) = 6.904W + 6.180

Definitions:

- W = Image Width
- H = Image Height (size)
- C = Throw distance

16:10 Screen Formulas

- W = H x 16/10
 - H = W x 10/16
 - Screen Diagonal = W x 18.868/16
- 16:9 Screen Formulas**
- W = H x 16/9
 - H = W x 9/16
 - Screen Diagonal = W x 18.358/16

Distance Chart for popular 16:10 Screens (WUXGA)

| Screen Size (16:10) | | | Zoom Lenses | | | | | | | | | |
|---------------------|--------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--|--------|--|--------|--|
| Diagonal inches | Width(W) inches | Height (H) inches | NP45ZL | | NP46ZL | | NP47ZL | | NP48ZL | | NP49ZL | |
| | | | 0.90-1.20:1 inches | 1.20-1.56:1 inches | 1.50-2.00-1 inches | 2.00-4.00:1 inches | 4.00-7.00:1 inches | | | | | |
| 40 | 34 | 21 | 28.4 - 39.0 | 37.4 - 50.5 | 48.9 - 66.1 | 71.6 - 136.4 | 139.3 - 240.4 | | | | | |
| 60 | 51 | 32 | 44.3 - 60.3 | 58.9 - 78.2 | 74.8 - 100.6 | 104.3 - 202.0 | 205.9 - 357.5 | | | | | |
| 68 | 58 | 36 | 50.7 - 68.9 | 67.4 - 89.3 | 85.2 - 114.4 | 117.3 - 228.2 | 232.6 - 404.3 | | | | | |
| 72 | 61 | 38 | 53.9 - 73.2 | 71.7 - 94.9 | 90.4 - 121.3 | 123.9 - 241.3 | 245.9 - 427.7 | | | | | |
| 85 | 72 | 45 | 64.3 - 87.0 | 85.7 - 112.9 | 107.3 - 143.7 | 145.1 - 283.9 | 289.2 - 503.8 | | | | | |
| 108 | 92 | 57 | 82.7 - 111.6 | 110.3 - 144.7 | 137.1 - 183.4 | 182.7 - 359.3 | 365.9 - 638.5 | | | | | |
| 113 | 96 | 60 | 86.7 - 116.9 | 115.7 - 151.7 | 143.6 - 192.0 | 190.8 - 375.7 | 382.5 - 667.7 | | | | | |
| 130 | 110 | 69 | 100.3 - 135.1 | 133.9 - 175.2 | 165.7 - 221.4 | 218.6 - 431.5 | 439.2 - 767.3 | | | | | |
| 137 | 116 | 73 | 105.9 - 142.5 | 141.4 - 184.9 | 174.8 - 233.5 | 230.0 - 454.4 | 462.5 - 808.3 | | | | | |
| 170 | 144 | 90 | 132.3 - 177.8 | 176.8 - 230.7 | 217.6 - 290.4 | 283.9 - 562.6 | 572.4 - 1001.5 | | | | | |
| 186 | 158 | 99 | 145.1 - 194.9 | 193.9 - 252.8 | 238.4 - 318.0 | 310.0 - 615.1 | 625.8 - 1095.1 | | | | | |
| 208 | 176 | 110 | 162.7 - 218.3 | 217.5 - 283.3 | 267.0 - 356.0 | 346.0 - 687.2 | 699.0 - 1223.9 | | | | | |
| 226 | 192 | 120 | 177.1 - 237.6 | 236.8 - 308.2 | 290.3 - 387.0 | 375.4 - 746.2 | 759.0 - 1329.3 | | | | | |
| 270 | 229 | 143 | 212.3 - 284.5 | 284.0 - 369.2 | 347.5 - 463.0 | 447.2 - 890.4 | 905.6 - 1586.9 | | | | | |
| 300 | 254 | 159 | 236.3 - 316.6 | 316.1 - 410.8 | 386.4 - 514.7 | 496.2 - 988.8 | 1005.6 - 1762.6 | | | | | |
| 500 | 424 | 265 | 396.2 - 530.1 | 530.5 - 687.9 | 646.1 - 859.9 | 822.9 - 1644.5 | 1671.9 - 2933.5 | | | | | |

Distance Chart using 16:9 native projector with 16:9 Image (1080p)

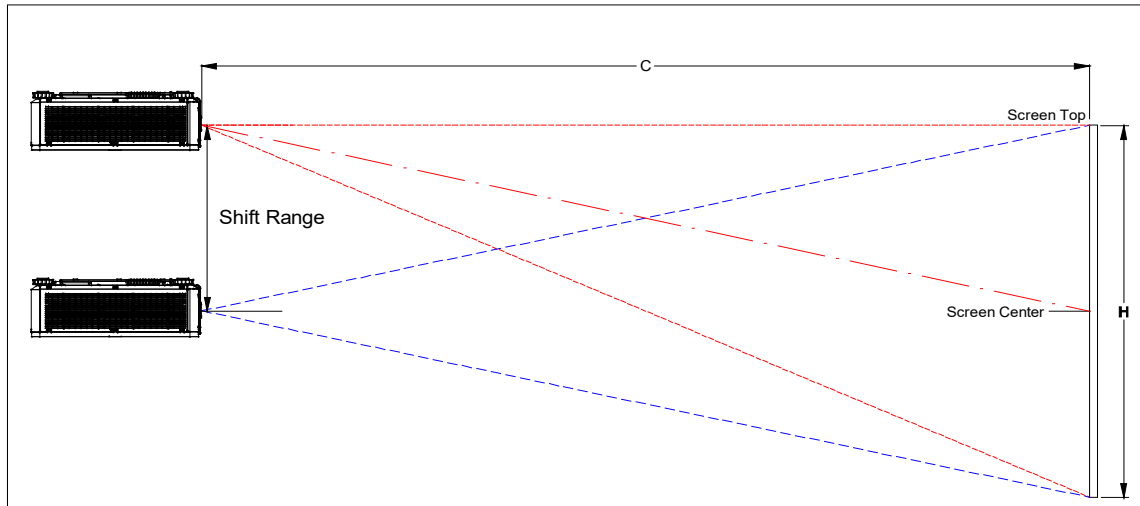
| Screen Size (16:9) | | | Zoom Lenses | | | | | | | | | |
|--------------------|--------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--|--------|--|--------|--|
| Diagonal inches | Width(W) inches | Height (H) inches | NP45ZL | | NP46ZL | | NP47ZL | | NP48ZL | | NP49ZL | |
| | | | 0.90-1.20:1 inches | 1.20-1.56:1 inches | 1.50-2.00-1 inches | 2.00-4.00:1 inches | 4.00-7.00:1 inches | | | | | |
| 39 | 34 | 19 | 28.4 - 39.1 | 37.5 - 50.6 | 55.1 - 66.2 | 71.7 - 136.7 | 139.6 - 240.9 | | | | | |
| 59 | 51 | 29 | 44.9 - 61.0 | 59.6 - 79.1 | 81.8 - 101.7 | 105.3 - 204.1 | 208.1 - 361.2 | | | | | |
| 67 | 58 | 33 | 51.4 - 69.8 | 68.4 - 90.5 | 92.5 - 115.9 | 118.7 - 231.0 | 235.5 - 409.3 | | | | | |
| 70 | 61 | 34 | 53.9 - 73.1 | 71.7 - 94.8 | 96.5 - 121.2 | 123.8 - 241.1 | 245.7 - 427.4 | | | | | |
| 83 | 72 | 41 | 64.6 - 87.4 | 86.0 - 113.3 | 113.8 - 144.3 | 145.6 - 284.9 | 290.3 - 505.6 | | | | | |
| 106 | 92 | 52 | 83.5 - 112.6 | 111.3 - 146.1 | 144.5 - 185.1 | 184.2 - 362.4 | 369.0 - 644.0 | | | | | |
| 110 | 96 | 54 | 86.8 - 117.0 | 115.7 - 151.8 | 149.9 - 192.1 | 190.9 - 375.9 | 382.7 - 668.1 | | | | | |
| 126 | 110 | 62 | 99.9 - 134.5 | 133.4 - 174.5 | 171.2 - 220.5 | 217.8 - 429.8 | 437.5 - 764.3 | | | | | |
| 133 | 116 | 65 | 105.7 - 142.2 | 141.1 - 184.5 | 180.5 - 232.9 | 229.5 - 453.4 | 461.5 - 806.5 | | | | | |
| 159 | 139 | 78 | 127.0 - 170.8 | 169.7 - 221.5 | 215.2 - 279.1 | 273.2 - 541.0 | 550.5 - 962.9 | | | | | |
| 184 | 160 | 90 | 147.6 - 198.2 | 197.3 - 257.1 | 248.6 - 323.4 | 315.1 - 625.3 | 636.1 - 1113.3 | | | | | |
| 202 | 176 | 99 | 162.4 - 217.9 | 217.1 - 282.8 | 272.6 - 355.3 | 345.3 - 685.9 | 697.8 - 1221.7 | | | | | |
| 220 | 192 | 108 | 177.2 - 237.7 | 236.9 - 308.4 | 296.6 - 387.2 | 375.6 - 746.6 | 759.4 - 1330.0 | | | | | |
| 263 | 229 | 129 | 212.5 - 284.9 | 284.3 - 369.6 | 354.0 - 463.5 | 447.7 - 891.4 | 906.6 - 1588.7 | | | | | |
| 299 | 261 | 147 | 242.1 - 324.4 | 323.9 - 420.9 | 402.0 - 527.4 | 508.2 - 1012.7 | 1029.9 - 1805.3 | | | | | |
| 500 | 436 | 245 | 407.3 - 544.9 | 545.4 - 707.2 | 670.2 - 883.9 | 845.6 - 1690.0 | 1718.2 - 3014.8 | | | | | |

PX2201UL Installation Guide

Rev 1.0

Desktop and Ceiling Mount

Ceiling Mount Installation

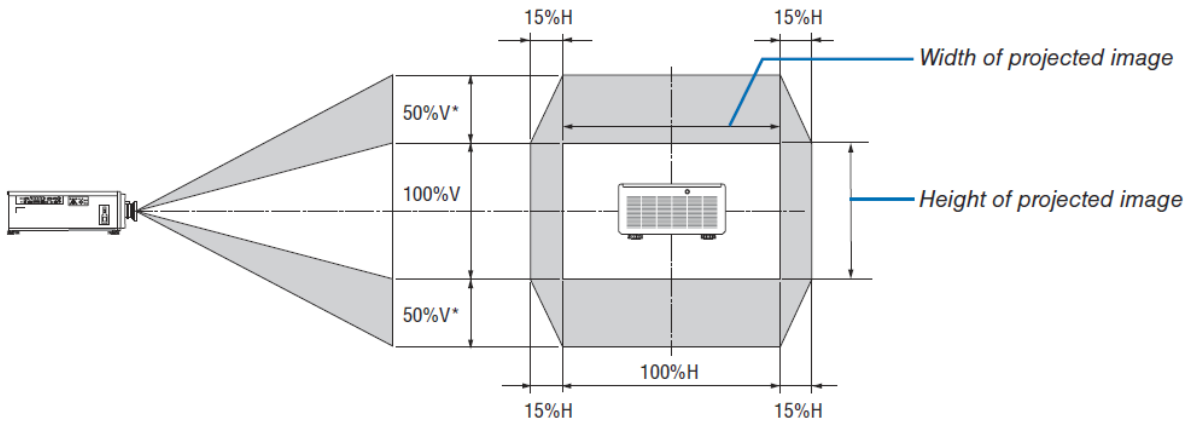


PX2201UL Installation Guide

Rev 1.0

Desktop and Ceiling Mount

Lens Shift Adjustable Range



Lens Shift Range for Desktop and Ceiling Mount Application

The diagram above shows the location of the image position in the lens. The lens can be shifted within the shaded area as shown using the normal projection position as a starting point.

Note: Lens shift feature is smaller for the NP45ZL +/- 45%V

Note: Projector is set out of the box at maximum lens shift, which is how it is depicted above.

(W: Width of projected image, H: Height of projected image)

PX2201UL Installation Guide

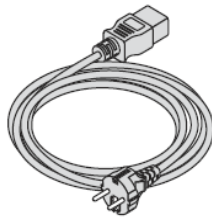
Rev 1.0

Desktop and Ceiling Mount

Power Cord

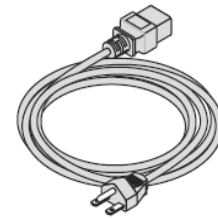
Power Supply: 200-240V AC, 50/60Hz (Single Phase)
Power Consumption: 1922W (max)
Rated Input Current: 9.7A, 50/60Hz
Power Cord Specification: 15A or Higher

Service Part Numbers (INCLUDED):



(79TM1021)

For Europe/Asia/South America



(79TQ1011)

For North America



NEMA 6-15P



NEMA 6-15R



IEC-60320-C19

Alternative Power Cord with Twist Lock:



NEMA L6-30P



NEMA L6-30R



IEC-60320-C19

PX2201UL Installation Guide

Rev 1.0

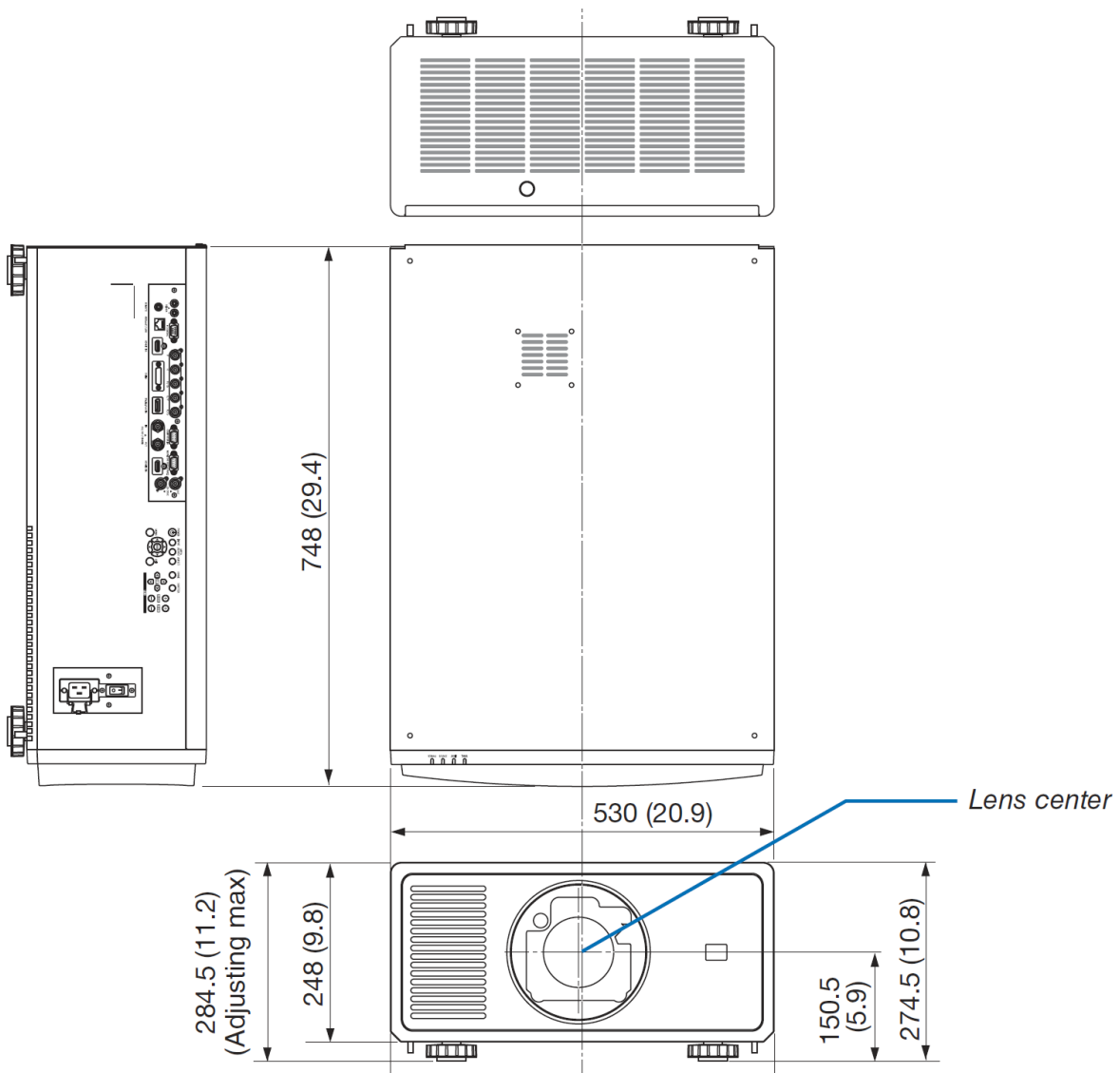
Desktop and Ceiling Mount

Cabinet Dimensions

The following diagrams show the cabinet dimensions for the PX2000UL.

Dimensions are in inches. For millimeters multiply by 25.4.

Note: Dimensions below shown without a lens

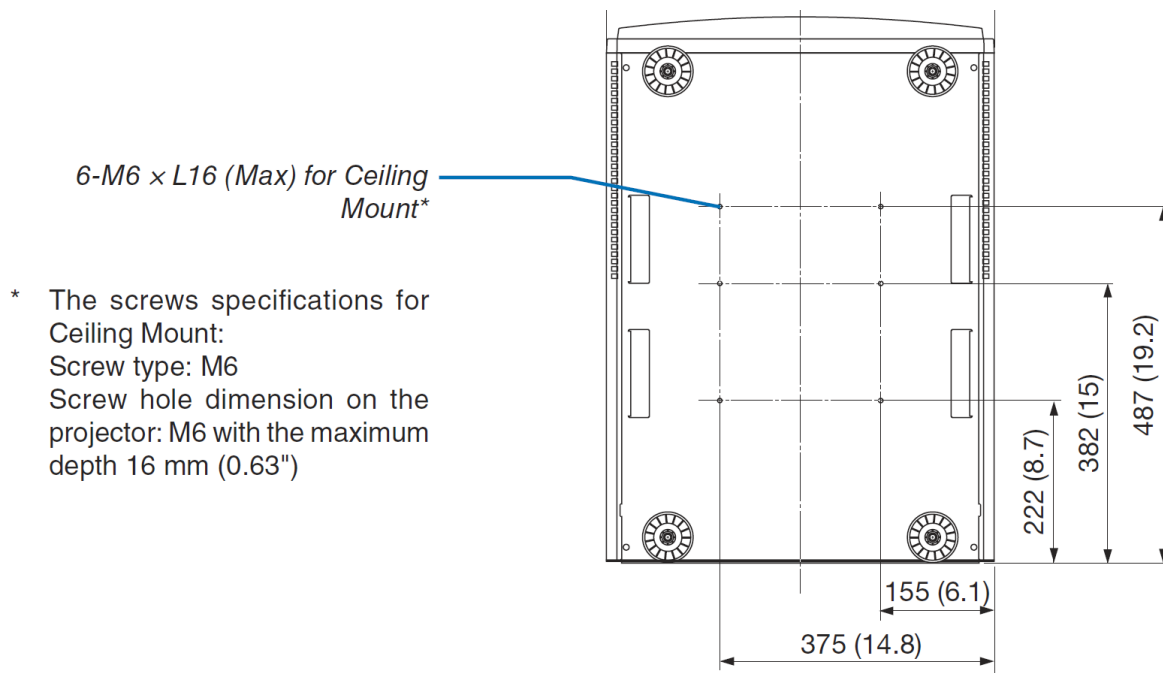


PX2201UL Installation Guide

Rev 1.0

Desktop and Ceiling Mount

Cabinet Dimensions

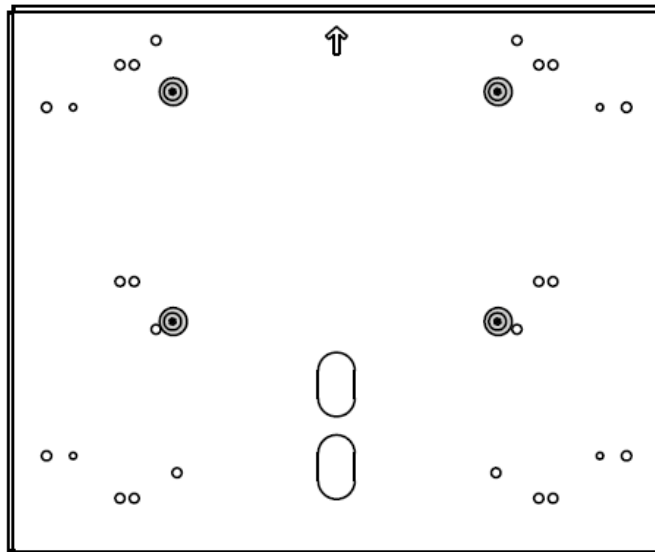
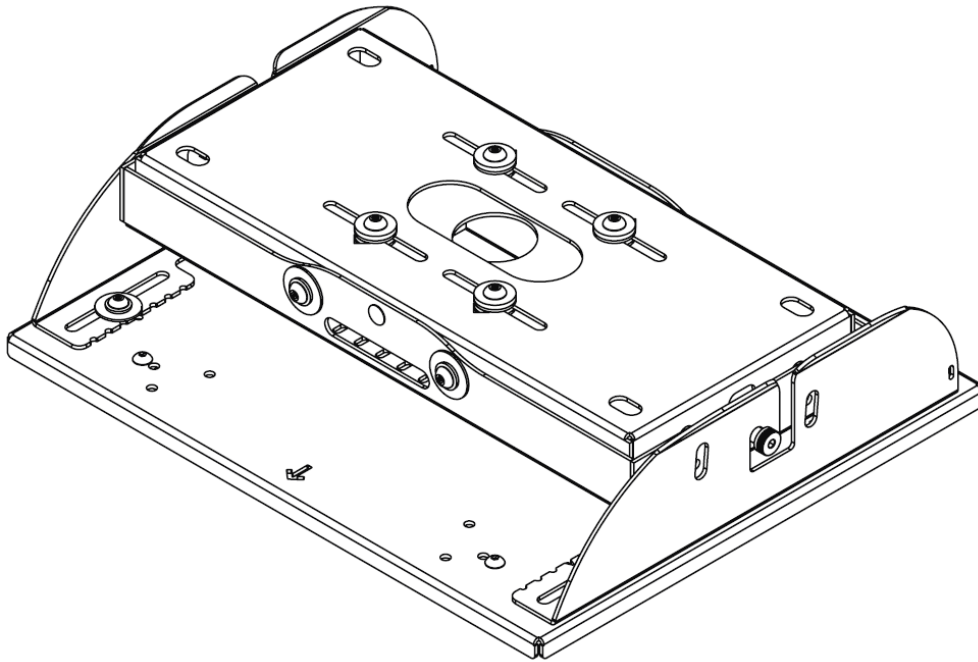


PX2201UL Installation Guide

Desktop and Ceiling Mount

Rev 1.0

IPJ2000CM



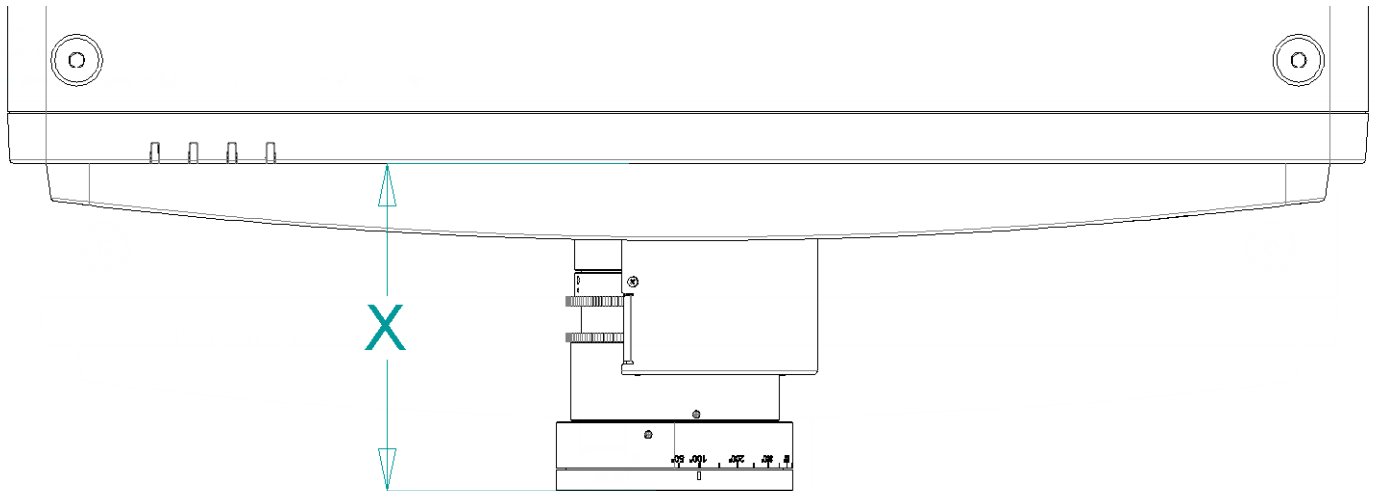
Mounting holes for
PX2000UL only

PX2201UL Installation Guide

Rev 1.0

Desktop and Ceiling Mount

Optional Lens Dimensions



| Lens | Distance "X" |
|--------|--------------|
| NP45ZL | 5.20" |
| NP46ZL | 4.54" |
| NP47ZL | 4.38" |
| NP48ZL | 5.32" |
| NP49ZL | 5.24" |

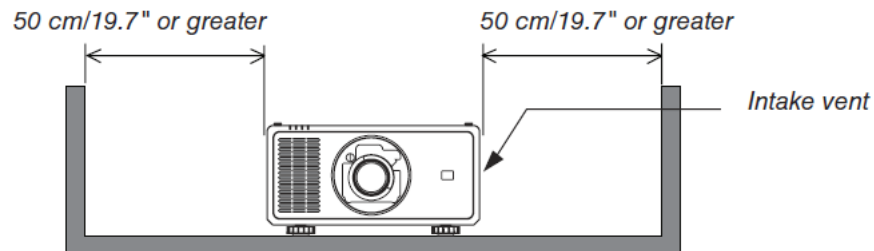
PX2201UL Installation Guide

Rev 1.0

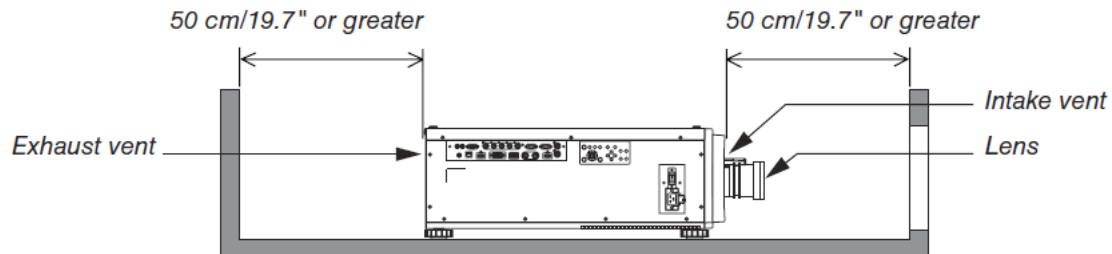
Desktop and Ceiling Mount

Ventilation Requirements

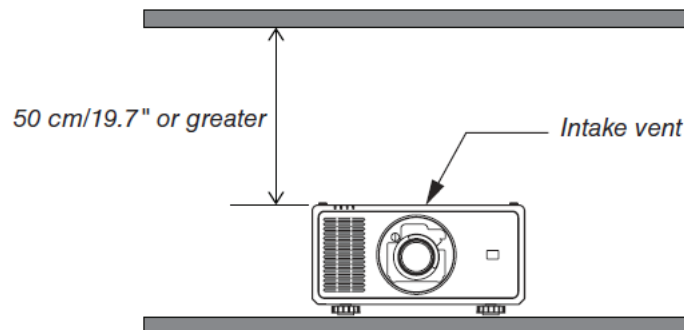
- If there are walls on both sides of the projector:



- If there's a wall behind the projector:



- If there's not much clearance above the projector:



PX2201UL Installation Guide

Desktop and Ceiling Mount

Rev 1.0

Regulatory Labels

Label Information

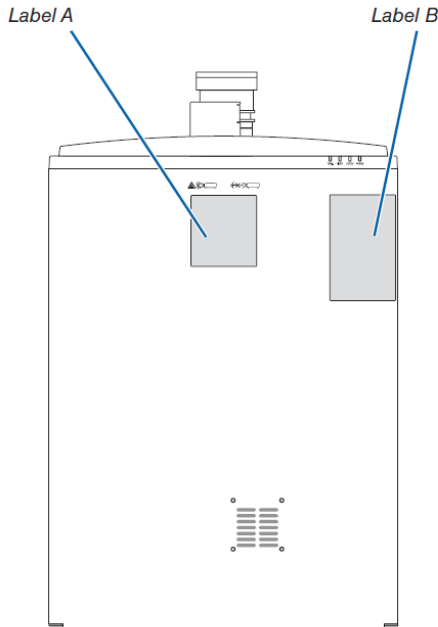
These labels are stuck on the below indicated positions.

For USA

The LASER PRODUCT in CLASS 3R conforming to IEC 60825-1 Second edition.

For other regions

The LASER PRODUCT in CLASS 1 conforming to IEC 60825-1 Third edition, and RG3 of IEC/EN 62471-5 First edition 2015.



Label A: Laser Explanatory Label
(Includes LASER APERTURE label)



Label B: Risk Group /Lamp Safety Label



PX2201UL Installation Guide

Rev 1.0

Desktop and Ceiling Mount

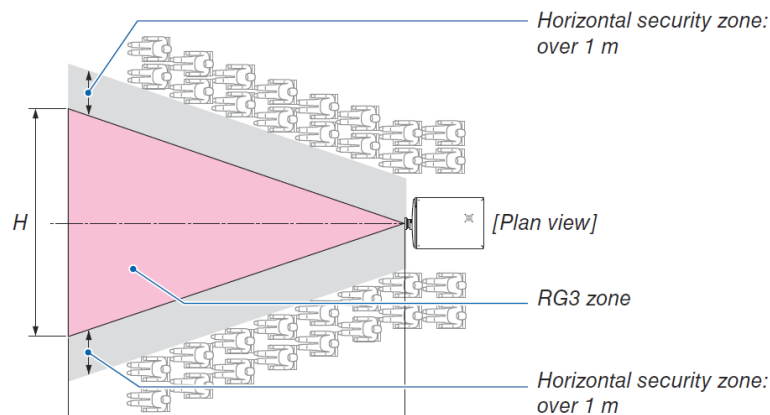
Hazard Zone

- The below table describes the radiation range of emitted light by the projector that is classified as Risk Group 3 (RG3) of IEC/EN 62471-5 First edition 2015.
- Please keep within bounds for installing the projector.
 - Install a barrier for preventing human eyes from entering the RG3 zone. For the barrier installation position, keep horizontal safety zone over 1 m from the RG3 zone. In case to install the projector over head, keep over 3 m distance at least between the floor surface and the RG3 zone.
 - This projector must be installed at a height that will prevent your eyes from being exposed within the RG3 zone.
 - The equipment administrator (operator) must control the entry of viewers into the RG3 zone.

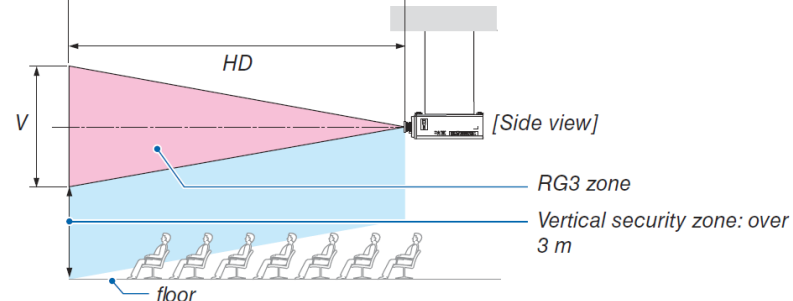
| Lens | RG3 HD (m) | Screen size (m) | | |
|--------|------------|-----------------|------|------|
| | | H | V | |
| NP45ZL | Wide | 2.0 | 2.22 | 1.39 |
| | Tele | 2.5 | 2.06 | 1.29 |
| NP46ZL | Wide | 3.0 | 2.48 | 1.55 |
| | Tele | 3.5 | 2.22 | 1.39 |
| NP47ZL | Wide | 3.5 | 2.34 | 1.46 |
| | Tele | 4.5 | 2.25 | 1.41 |
| NP48ZL | Wide | 5.5 | 2.77 | 1.73 |
| | Tele | 6.5 | 1.65 | 1.03 |
| NP49ZL | Wide | 8.0 | 2.00 | 1.25 |
| | Tele | 9.5 | 1.35 | 0.85 |

The drawings below are example of typical installation methods. Besides these, when installing the projector at an angle, a security zone is required in the same way.

When installed on a floor or a desktop



When installed on a ceiling



* If lens shift is utilized, please consider the shift of projected image according to the volume of lens shift.

PX2201UL Installation Guide

Desktop and Ceiling Mount

Rev 1.0

Input Panel



Control Panel



PX2201UL Installation Guide

Rev 1.0

Desktop and Ceiling Mount

PC Control Codes

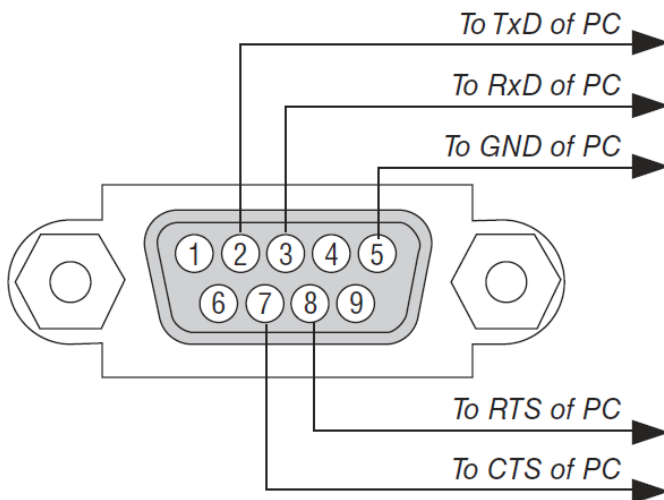
| Function | Code Data | | | | | | | | |
|--------------------------|-----------|-----|-----|-----|-----|-----|-----|-----|--|
| POWER ON | 02H | 00H | 00H | 00H | 00H | 02H | | | |
| POWER OFF | 02H | 01H | 00H | 00H | 00H | 03H | | | |
| INPUT SELECT HDMI1 | 02H | 03H | 00H | 00H | 02H | 01H | A1H | A9H | |
| INPUT SELECT HDMI2 | 02H | 03H | 00H | 00H | 02H | 01H | A2H | AAH | |
| INPUT SELECT COMPUTER | 02H | 03H | 00H | 00H | 02H | 01H | 01H | 09H | |
| INPUT SELECT BNC | 02H | 03H | 00H | 00H | 02H | 01H | 02H | 10H | |
| INPUT SELECT DVI-D | 02H | 03H | 00H | 00H | 02H | 01H | 9CH | A4H | |
| INPUT SELECT DisplayPort | 02H | 03H | 00H | 00H | 02H | 01H | A6H | AEH | |
| INPUT SELECT 3G-SDI | 02H | 03H | 00H | 00H | 02H | 01H | C4H | CCH | |
| INPUT SELECT HDBaseT | 02H | 03H | 00H | 00H | 02H | 01H | BFH | C7H | |

Cable Connection

Communication Protocol:

- Baud Rate: 9600 bps (for cable lengths longer than 20', it is recommended changing to 9600 bps in setup menu)
- Data Length: 8 bits
- Parity: No Parity
- Stop Bit: One bit
- X on/off: None
- Communications: Full duplex

PC Control Terminal (D-SUB 9P)



Note 1: Pins 1, 4, 6, and 9 are used inside the projector.

Note 2: For long cable runs it is recommended to set communication speed within the projector to 9600 bps.

Note 3: Jumper "Request to Send" and "Clear to Send" together on both ends of the cable to simplify cable connection.