

A824U & A104U Installation Guide

Rev 1.0

Desktop and Ceiling Mount

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Product Description

| | | |
|---------------------------|--|--|
| Type: | 3 panel LCD projector, 0.76 p-Si TFT w/MLA | Dimensions: 23.6"(W) x 8.5"(H) x 19.3"(D) |
| | | Weight: A824U: 53.1 lbs A104U: 53.8 lbs |
| Screen Resolution: | 1920 x 1200 (16:10) | Brightness: A824U: 8,200 Lumens A104U: 10,000 Lumens |
| Fan Noise: | A824U: 30 dB / 28dB @ 1 meter A104U: 35 dB / 32dB @ 1 meter | Power Requirements: 100-240V AC 50/60Hz A824U: 8.6A / A104U: 10.5A |
| Power Consumption: | A824U: 675W (max) A104U: 845W (max) | BTU's: A824U: 2295 BTU/hour A104U: 2873 BTU/hour |

Lens Specifications

| | | | |
|--------------------------|--|---|--------------------------------|
| NP44ML / XP-44ML: | Throw Ratio: 0.32:1 Screen Sizes: 100"-400" | Focal Length: 6.27mm F#:2.0 | Weight: 6.8lbs. / 3.1kg |
| NP50ZL / XP-50ZL: | Throw Ratio: 0.60 – 0.75:1 Screen Sizes: 50"-500" | Focal Length: 10.2 – 12.8mm F#:1.9 - 2.1 | Weight: 3.5lbs. / 1.6kg |
| NP40ZL / XP-40ZL: | Throw Ratio: 0.79 – 1.11:1 Screen Sizes: 50"-500" | Focal Length: 13.3 – 18.6mm F#:2.0 - 2.5 | Weight: 3.5lbs. / 1.6kg |
| NP41ZL / XP-41ZL: | Throw Ratio: 1.30 – 3.02:1 Screen Sizes: 50" - 500" | Focal Length: 21.8 – 49.8mm F#:1.7 – 2.0 | Weight: 3.7lbs. / 1.7kg |
| NP43ZL / XP-43ZL: | Throw Ratio: 2.99 – 5.93:1 Screen Sizes: 50"-500" | Focal Length: 49.7 – 99.8mm F#:2.2 -2.6 | Weight: 3.7lbs. / 1.7kg |

Screen/Aspect Ratio

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

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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:

XP-50ZL: C(Wide) = 0.626W – 1.932 ----- C(Tele) = 0.779W – 2.024
XP-40ZL: C(Wide) = 0.807W – 1.535 ----- C(Tele) = 1.131W – 1.632
XP-41ZL: C(Wide) = 1.323W – 1.763 ----- C(Tele) = 3.034W – 1.539
XP-43ZL: C(Wide) = 2.929W + 5.143 ----- C(Tele) = 5.878W + 4.320
 Horizontal Lens Shift Max (Right) = 0.30W (XP-40ZL, XP-41ZL, XP-43ZL)
 Horizontal Lens Shift Max (Left) = 0.30W (XP-40ZL, XP-41ZL, XP-43ZL)

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
 Diagonal = W x 18.868/16

Distance Chart for popular 16:10 Screens (WUXGA)

| Screen Size (16:10) | | | Zoom Lenses | | | |
|---------------------|----------|------------|---------------|---------------|----------------|-----------------|
| | | | XP-50ZL | XP-40ZL | XP-41ZL | XP-43ZL |
| Diagonal | Width(W) | Height (H) | 0.6 - 0.75:1 | 0.79 - 1.11:1 | 1.30 - 3.02:1 | 2.99 - 5.93:1 |
| inches | inches | inches | inches | inches | inches | inches |
| 60 | 51 | 32 | 29.9 - 37.6 | 39.5 - 55.9 | 65.6 - 152.8 | 154.2 - 303.4 |
| 67 | 57 | 36 | 33.6 - 42.2 | 44.3 - 62.6 | 73.4 - 170.8 | 171.6 - 338.3 |
| 72 | 61 | 38 | 36.3 - 45.5 | 47.7 - 67.4 | 79.0 - 183.7 | 184.0 - 363.2 |
| 84 | 71 | 45 | 42.7 - 53.5 | 55.9 - 78.9 | 92.5 - 214.6 | 213.8 - 423.0 |
| 94 | 80 | 50 | 48.0 - 60.1 | 62.8 - 88.5 | 103.7 - 240.3 | 238.6 - 472.9 |
| 100 | 85 | 53 | 51.2 - 64.0 | 66.9 - 94.3 | 110.4 - 255.7 | 253.5 - 502.8 |
| 120 | 102 | 64 | 61.8 - 77.2 | 80.6 - 113.5 | 132.9 - 307.2 | 303.2 - 602.5 |
| 150 | 127 | 79 | 77.7 - 97.1 | 101.1 - 142.2 | 166.5 - 384.4 | 377.7 - 752.0 |
| 180 | 153 | 95 | 93.6 - 116.9 | 121.6 - 171.0 | 200.2 - 461.6 | 452.2 - 901.5 |
| 210 | 178 | 111 | 109.5 - 136.7 | 142.2 - 199.8 | 233.8 - 538.8 | 526.7 - 1051.1 |
| 240 | 204 | 127 | 125.5 - 156.5 | 162.7 - 228.5 | 267.5 - 615.9 | 601.3 - 1200.6 |
| 270 | 229 | 143 | 141.4 - 176.3 | 183.2 - 257.3 | 301.1 - 693.1 | 675.8 - 1350.1 |
| 300 | 254 | 159 | 157.3 - 196.2 | 203.8 - 286.1 | 334.8 - 770.3 | 750.3 - 1499.7 |
| 400 | 339 | 212 | 210.4 - 262.2 | 272.2 - 382.0 | 447.0 - 1027.6 | 998.7 - 1998.1 |
| 500 | 424 | 265 | 263.5 - 328.3 | 340.6 - 477.9 | 559.2 - 1284.9 | 1247.0 - 2496.6 |

Notes

- For screen sizes not indicated on the projection tables, use the formulas above respective charts. 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%.

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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:

- XP-44ML:**
- A=(0.339*W) - 25.2
 - B=((0.844*W) + 6.614) - (0.5*H))
 - C=(0.339*W) -1.333
 - D=(0.219*W) - 1.791
 - E=(0.219*W) + 6.562

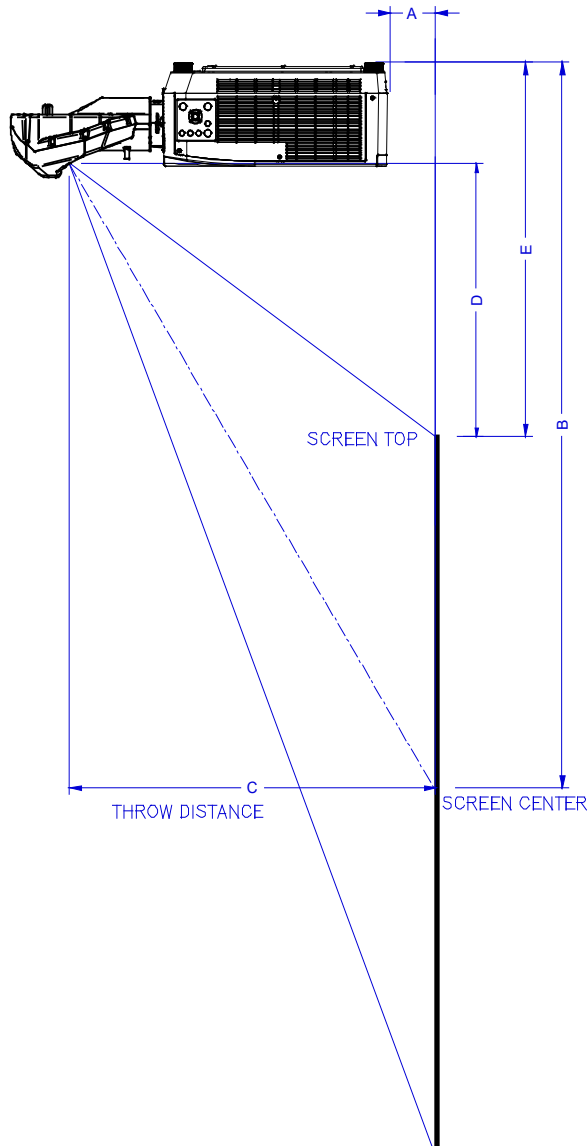
Definitions:

- 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

Distance Chart for popular 16:10 Screens (WUXGA) with XP-44ML Installation



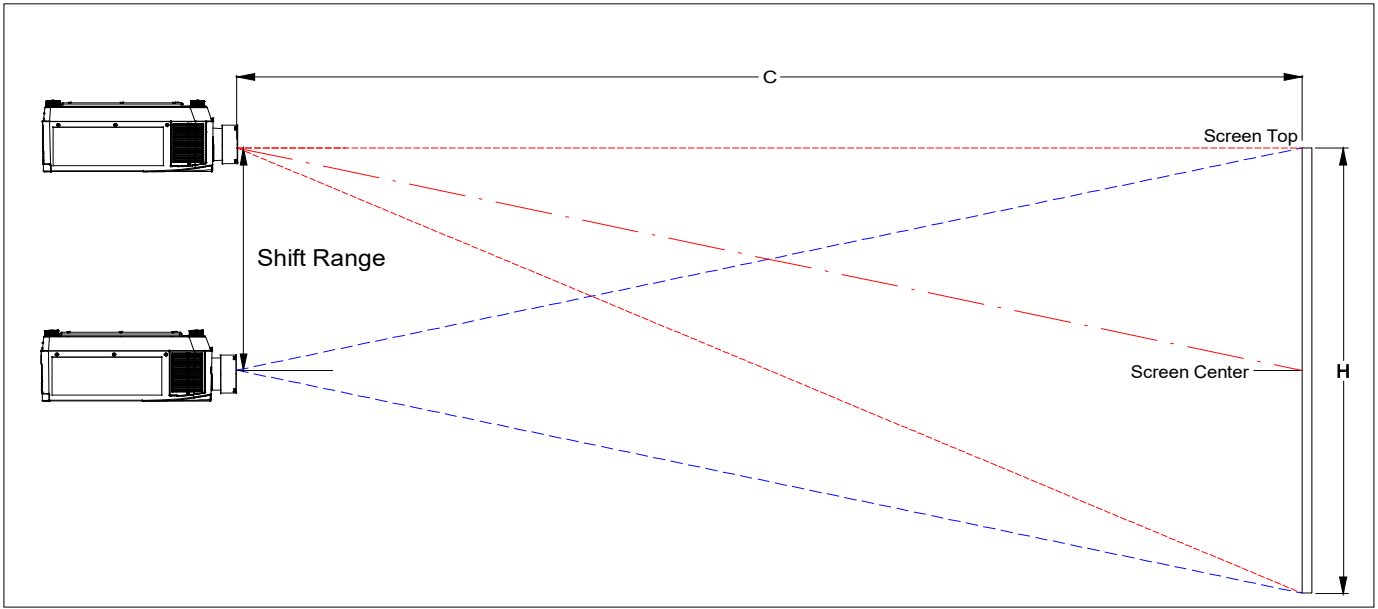
| Screen Size (16:10) | | | A | B | C | D | E |
|---------------------|----------|------------|--------|--------|--------|--------|--------|
| Diagonal | Width(W) | Height (H) | inches | inches | inches | inches | inches |
| 108 | 92 | 57 | 5.8 | 55.3 | 29.7 | 18.3 | 26.6 |
| 118 | 100 | 63 | 8.7 | 59.8 | 32.6 | 20.1 | 28.5 |
| 130 | 110 | 69 | 12.2 | 65.2 | 36.0 | 22.4 | 30.7 |
| 137 | 116 | 73 | 14.2 | 68.4 | 38.1 | 23.7 | 32.0 |
| 164 | 139 | 87 | 21.9 | 80.5 | 45.8 | 28.7 | 37.0 |
| 189 | 160 | 100 | 29.1 | 91.8 | 53.0 | 33.3 | 41.7 |
| 208 | 176 | 110 | 34.6 | 100.4 | 58.5 | 36.8 | 45.2 |
| 226 | 192 | 120 | 39.8 | 108.5 | 63.6 | 40.2 | 48.5 |
| 270 | 229 | 143 | 52.4 | 128.3 | 76.3 | 48.4 | 56.7 |
| 300 | 254 | 159 | 61.0 | 141.8 | 84.9 | 53.9 | 62.3 |
| 350 | 297 | 185 | 75.4 | 164.4 | 99.3 | 63.2 | 71.6 |

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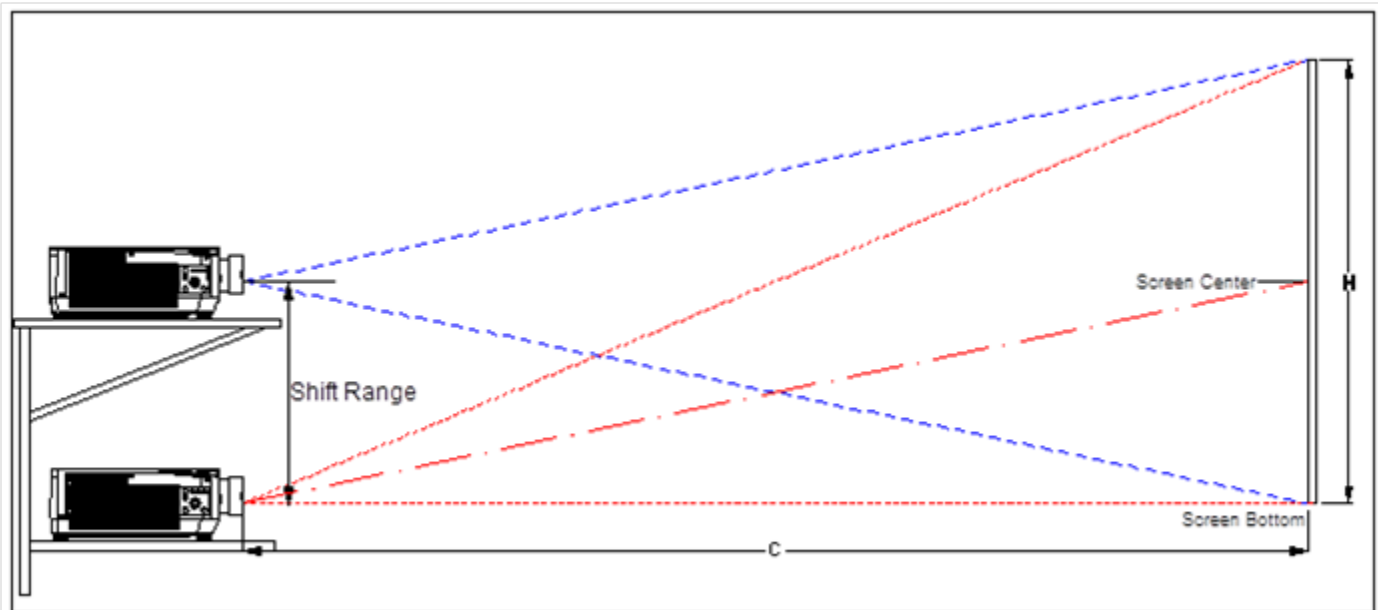
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Ceiling Mount Installation



Desktop Installation



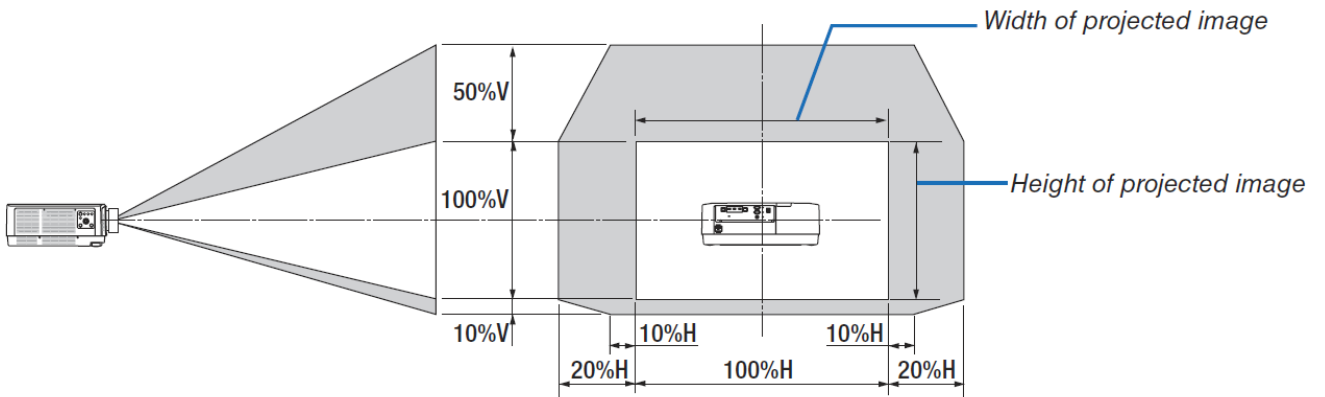
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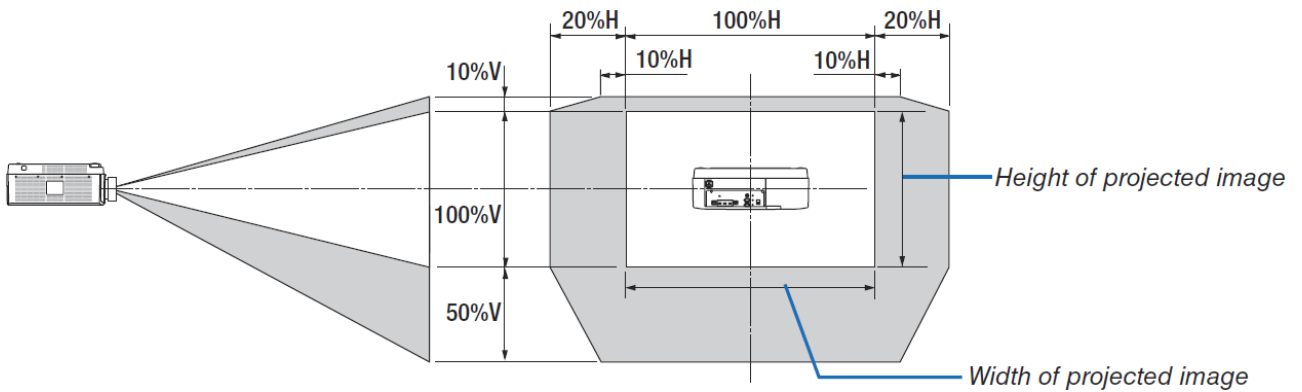
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Lens Shift Adjustable Range

Desk/front projection



Ceiling/front projector



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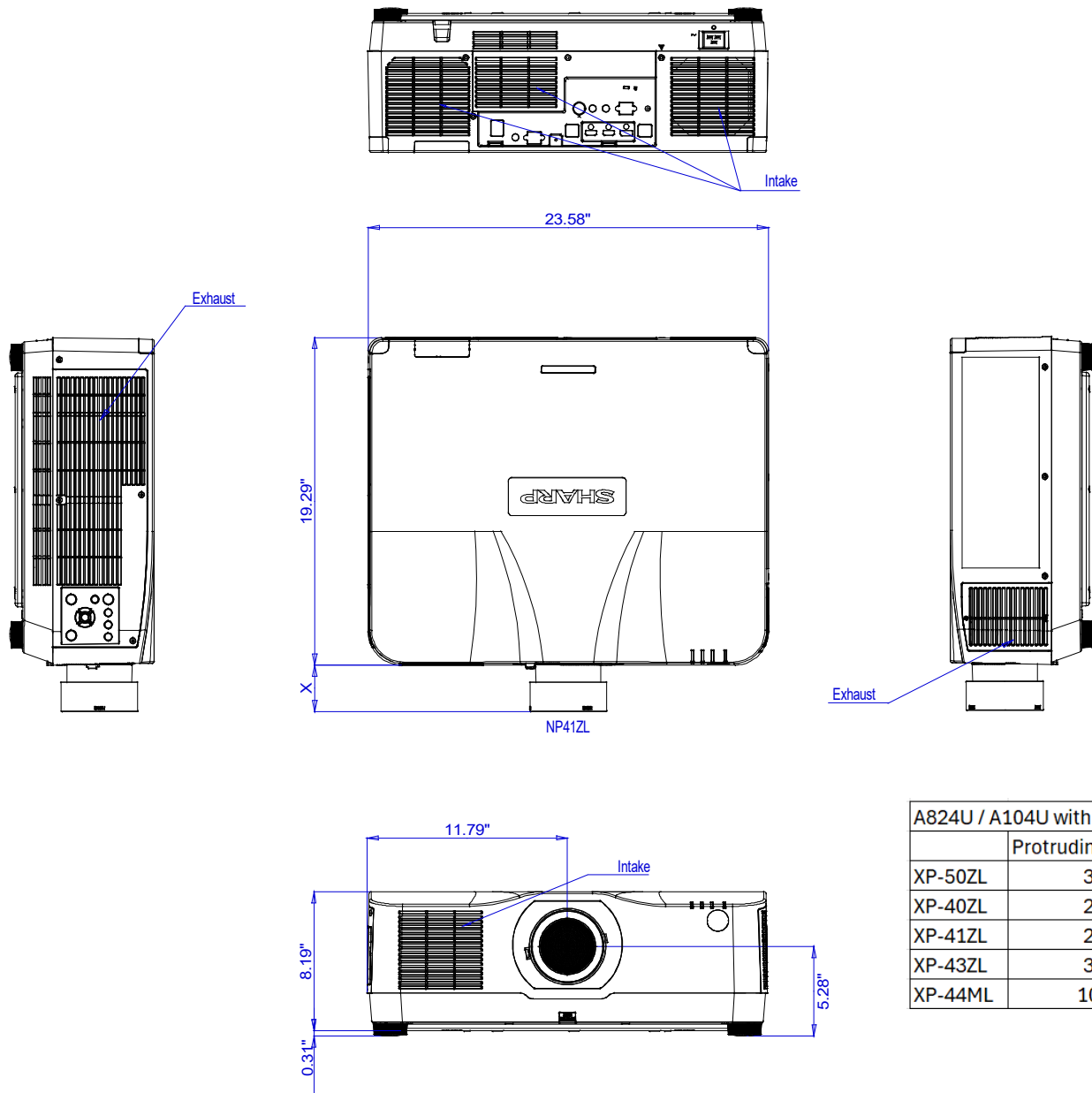
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Cabinet Dimensions

The following diagrams show the cabinet dimensions for the A824U/A104U.

Dimensions are in inches. For millimeters multiply by 25.4.

Note: Dimensions below shown with the XP-41ZL lens



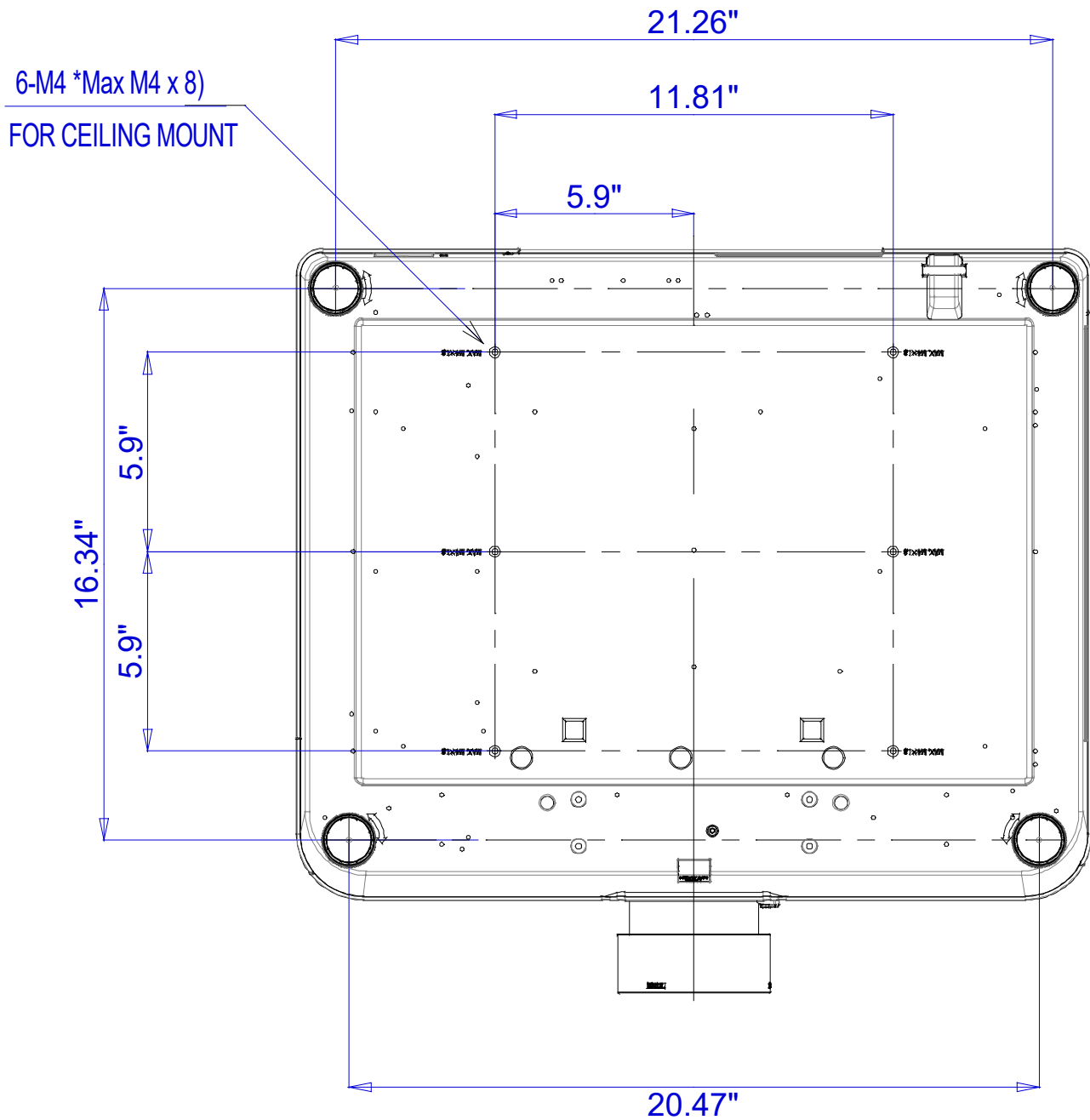
| A824U / A104U with Option Lens | |
|--------------------------------|----------------------|
| | Protruding value (X) |
| XP-50ZL | 3.88" |
| XP-40ZL | 2.57" |
| XP-41ZL | 2.73" |
| XP-43ZL | 3.31" |
| XP-44ML | 10.81" |

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Cabinet Dimensions



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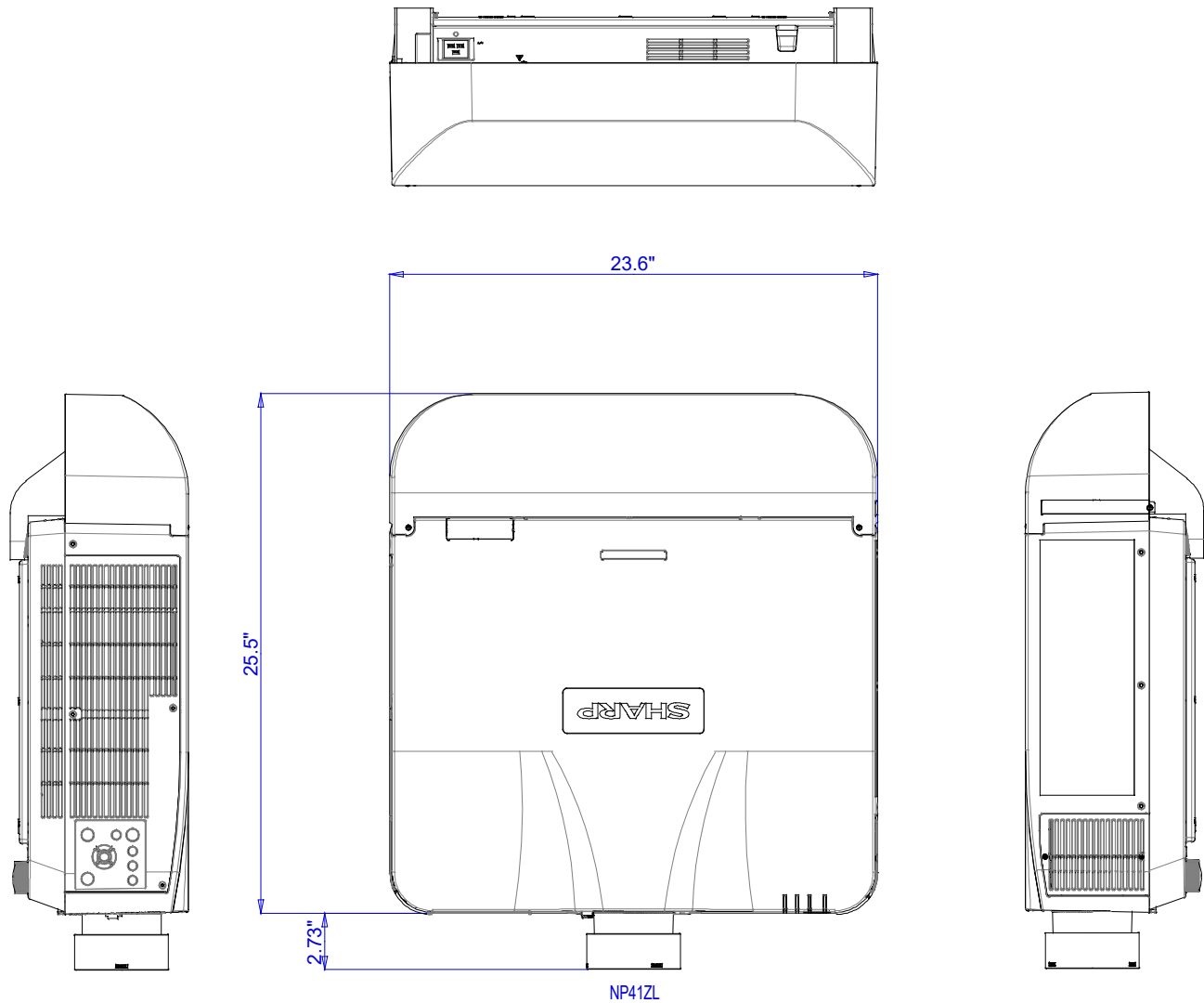
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Cabinet Dimensions with Cable Cover

The following diagrams show the cabinet dimensions for the A824U/A104U.

Dimensions are in inches. For millimeters multiply by 25.4.

Note: Dimensions below shown with the XP-41ZL lens

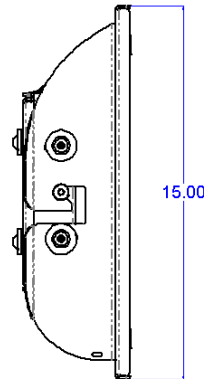
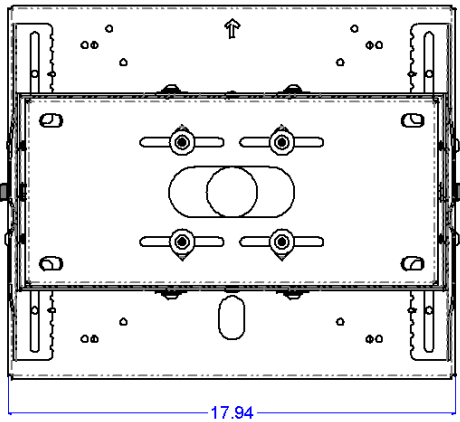
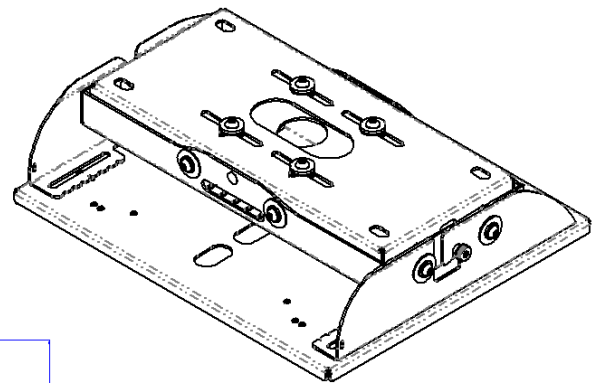
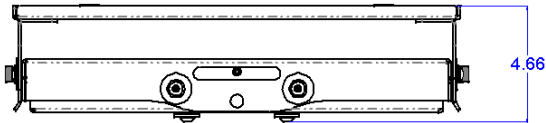


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IPJ2000CM

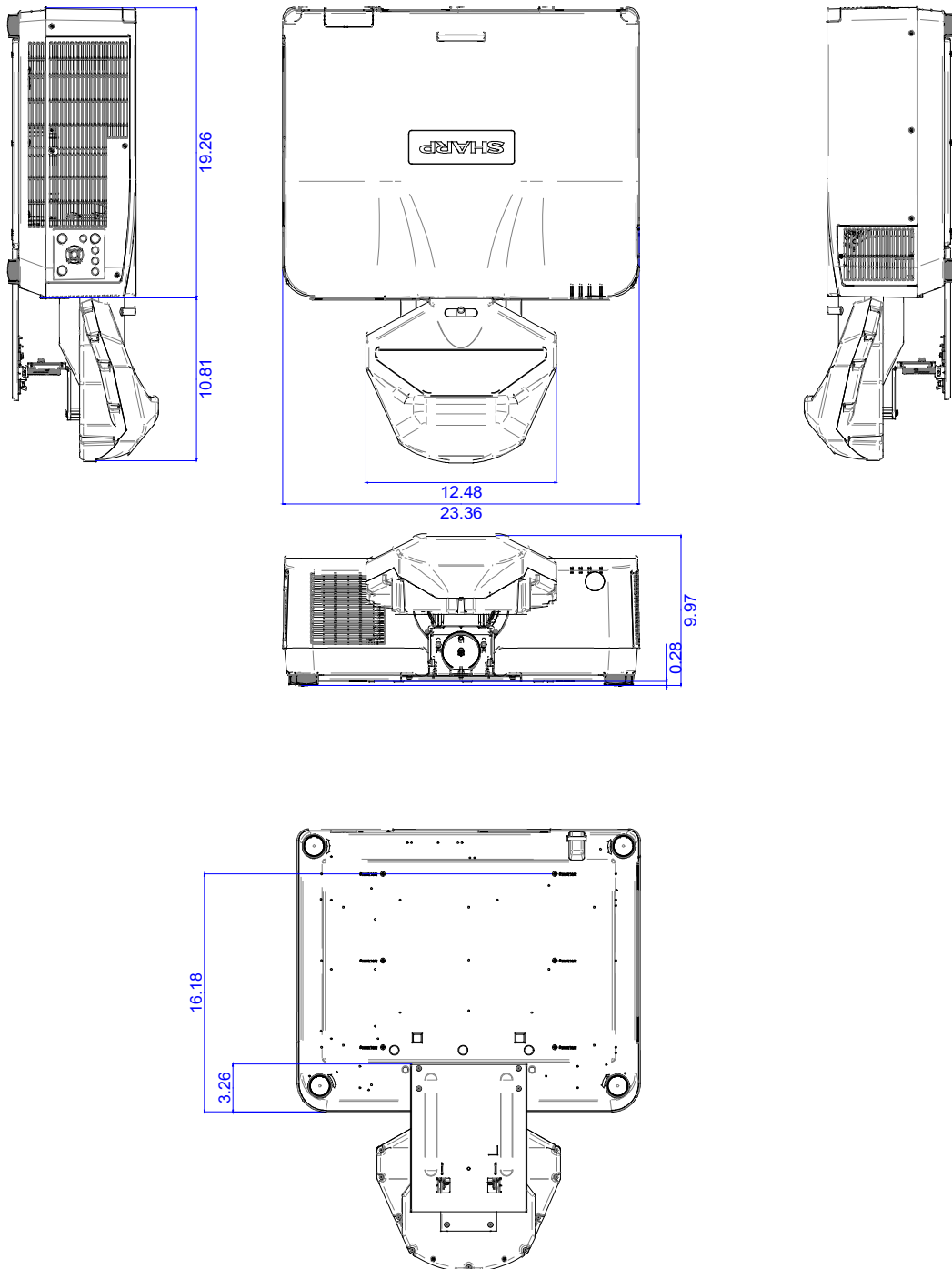


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Optional Lens Dimensions (XP-44ML w/ XP-02LK)

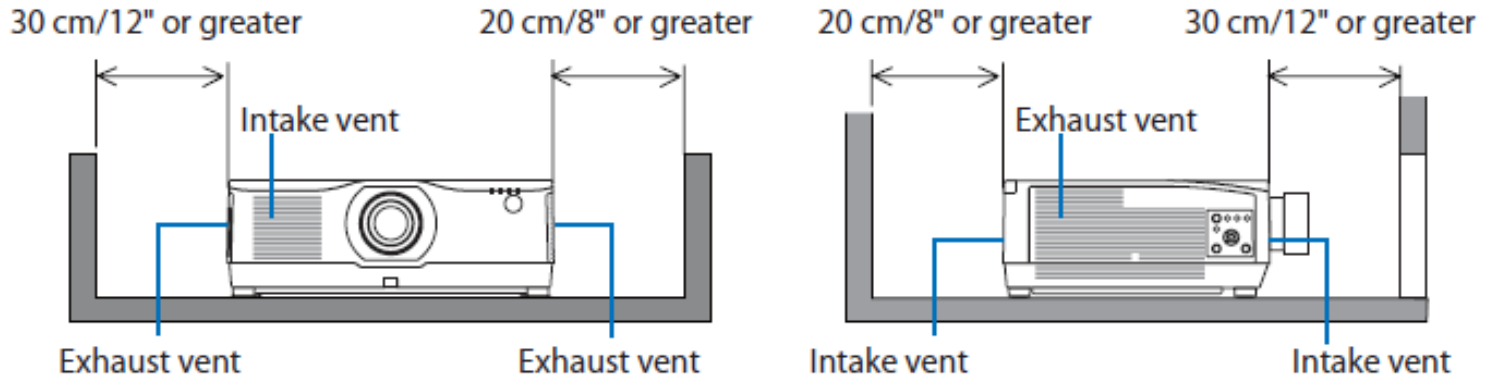


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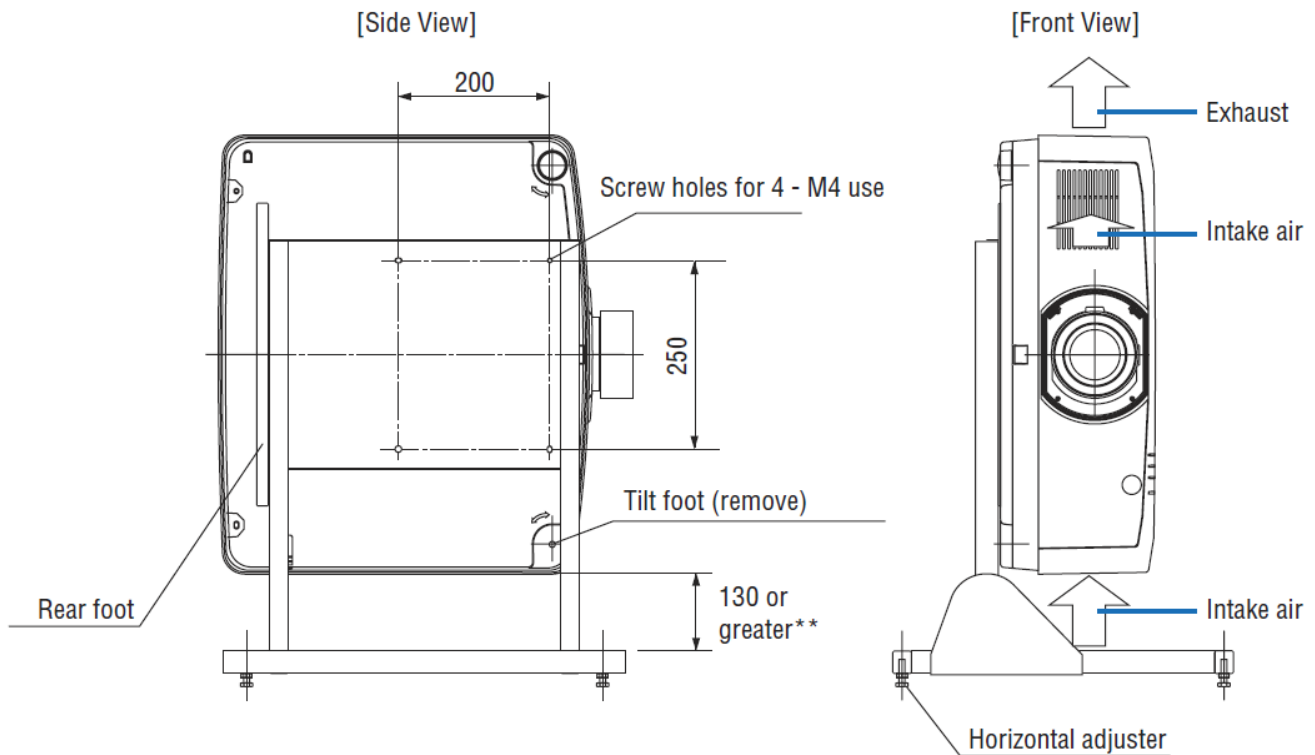
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Ventilation Requirements



Portrait Requirements

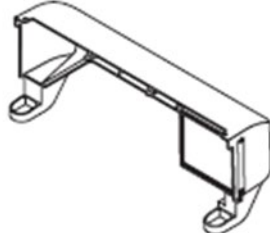



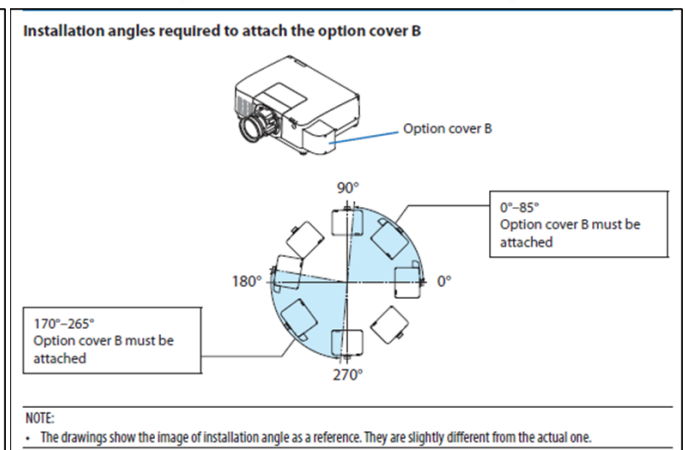
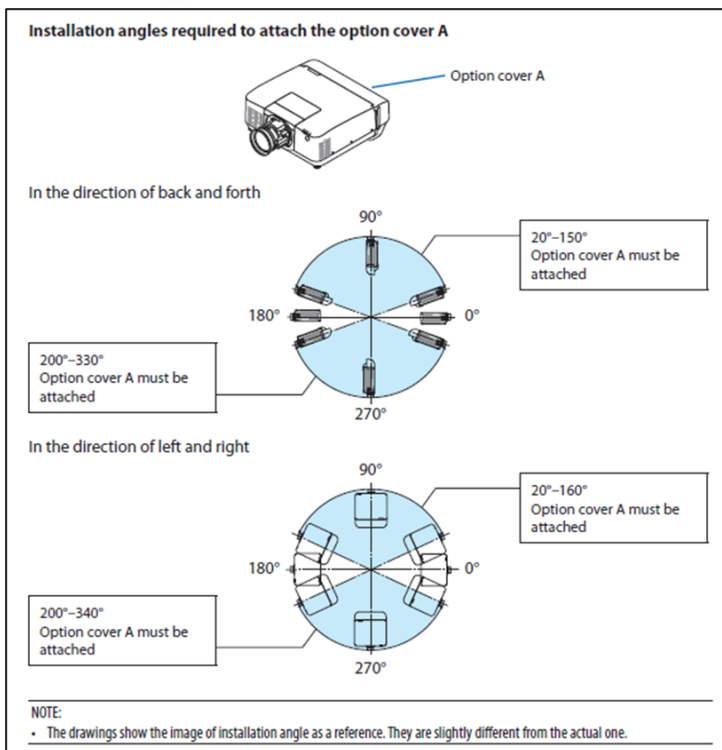
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Cable Cover / Vent Cover (XP-13CV-W/B)

| | |
|---|---|
| <p>Option cover A</p> <ul style="list-style-type: none"> To make the appearance clean by covering the connected cables To install the projector with its rear upward or downward |  |
| <p>Option cover B</p> <ul style="list-style-type: none"> To install the projector with its exhaust vents upward or downward |  |



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Regulatory Labels

Label 1



Label 2



Input Panel



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PC Control Codes

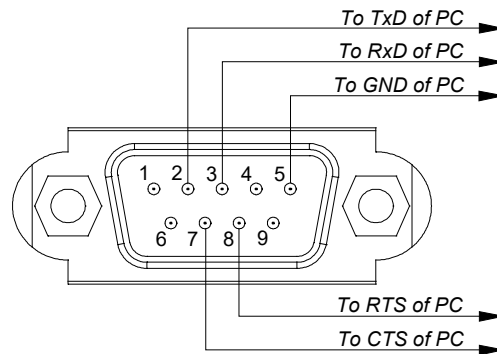
| Function | Code Data | | | | | | | | |
|--------------------------|-----------|-----|-----|-----|-----|-----|-----|-----|--|
| POWER ON | 02H | 00H | 00H | 00H | 00H | 02H | | | |
| POWER OFF | 02H | 01H | 00H | 00H | 00H | 03H | | | |
| INPUT SELECT HDMI1 | 02H | 03H | 00H | 00H | 02H | 01H | A1H | A9H | |
| INPUT SELECT HDMI2 | 02H | 03H | 00H | 00H | 02H | 01H | A2H | AAH | |
| INPUT SELECT DisplayPort | 02H | 03H | 00H | 00H | 02H | 01H | A6H | AEH | |
| INPUT SELECT Computer | 02H | 03H | 00H | 00H | 02H | 01H | 01H | 09H | |
| INPUT SELECT HDBaseT | 02H | 03H | 00H | 00H | 02H | 01H | BFH | C7H | |
| PICTURE MUTE ON | 02H | 10H | 00H | 00H | 00H | 12H | | | |
| PICTURE MUTE OFF | 02H | 11H | 00H | 00H | 00H | 13H | | | |
| SOUND MUTE ON | 02H | 12H | 00H | 00H | 00H | 14H | | | |
| SOUND MUTE OFF | 02H | 13H | 00H | 00H | 00H | 15H | | | |
| ON SCREEN MUTE ON | 02H | 14H | 00H | 00H | 00H | 16H | | | |
| ON SCREEN MUTE OFF | 02H | 15H | 00H | 00H | 00H | 17H | | | |
| AUTO ADJUST | 02H | 0FH | 00H | 00H | 02H | 05H | 00H | 18H | |

Cable Connection

Communication Protocol:

- Baud Rate: 38400 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: 1 bit
- X on/off: None
- Communications: Full duplex

PC Control Connector (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.