

PV710UL & PV800UL Installation Guide

Rev 1.1

Desktop and Ceiling Mount

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Product Description

Type:	3 panel LCD projector, 0.76 p-Si TFT w/MLA	Dimensions: 19.8"(W) x 6.6"(H) x 16.2"(D)
		Weight: 24.7 lbs
Resolution:	1920 x 1200 (16:10)	Brightness: PV710UL: 7,100 Lumens PV800UL: 8,000 Lumens
Fan Noise:	PV710UL: 40 dB / 31 dB @ 1 meter PV800UL: 42 dB / 32 dB @ 1 meter	
Power Consumption:	PV710UL: 456W (max) PV800UL: 490W (max)	BTU's: PV710UL: 1550 BTU/hour PV800UL: 1666 BTU/hour

Network Ready, integrated wired and wireless adapter

Manual: Lens Shift, Horizontal & Vertical /Zoom/ Focus using NP11FL, NP12ZL, NP13ZL, NP14ZL, NP15ZL

Lens Specifications

NP44ML-01LK :	Throw Ratio: 0.32:1 Screen Sizes: 100"-400"	Focal Length: 6.27mm F/#:2.0	Weight: 6.8lbs. / 3.1kg
NP50ZL:	Throw Ratio: 0.60 – 0.75:1 Screen Sizes: 60"-500"	Focal Length: 10.2 – 12.8mm F/#:1.9 - 2.1	Weight: 3.5lbs. / 1.6kg
NP11FL:	Throw Ratio: ~ 0.79:1 Screen Sizes: 40"-150"	Focal Length: 13.2mm F/#:2.3	Weight: 2.6lbs. / 1.2kg
NP12ZL:	Throw Ratio: 1.16 - 1.52:1 Screen Sizes: 30" - 500"	Focal Length: 19.4 – 25.3mm F/#:2.2 – 2.69	Weight: 2.6lbs. / 1.2kg
NP13ZL:	Throw Ratio: 1.46 – 2.95:1 Screen Sizes: 40" - 500"	Focal Length: 24.4 – 48.6mm F/#:1.7 – 2.37	Weight: 1.9lbs. / 0.84kg
NP14ZL:	Throw Ratio: 2.90 -4.64:1 Screen Sizes: 60" - 500"	Focal Length: 48.5 - 77.6mm F/#:2.2 -2.64	Weight: 2.2lbs. / 1.0kg
NP15ZL:	Throw Ratio: 4.59 – 7.02:1 Screen Sizes: 60"-500"	Focal Length: 76.6 – 116.5mm F/#:2.2 -2.7	Weight: 2.2lbs. / 1.0kg
NP40ZL:	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:	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:	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 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.

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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:

NP11FL:	$C = 0.807W - 1.354$
NP50ZL:	$C(\text{Wide}) = 0.626W - 1.932$ ----- $C(\text{Tele}) = 0.779W - 2.024$
NP12ZL:	$C(\text{Wide}) = 1.185W - 1.794$ ----- $C(\text{Tele}) = 1.541W - 1.794$
NP13ZL:	$C(\text{Wide}) = 1.488W - 1.974$ ----- $C(\text{Tele}) = 2.970W - 1.972$
NP14ZL:	$C(\text{Wide}) = 2.961W - 4.844$ ----- $C(\text{Tele}) = 4.737W - 4.844$
NP15ZL:	$C(\text{Wide}) = 4.681W - 7.630$ ----- $C(\text{Tele}) = 7.115W - 7.630$
NP40ZL:	$C(\text{Wide}) = 0.807W - 1.535$ ----- $C(\text{Tele}) = 1.131W - 1.632$
NP41ZL:	$C(\text{Wide}) = 1.323W - 1.763$ ----- $C(\text{Tele}) = 3.034W - 1.539$
NP43ZL:	$C(\text{Wide}) = 2.929W + 5.143$ ----- $C(\text{Tele}) = 5.878W + 4.320$

Definitions:

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

16:10 Screen Formulas

$W = H \times 16/10$
 $H = W \times 10/16$
Diagonal = $W \times 18.868/16$

Horizontal Lens Shift Max (Right) = 0.30W (NP12ZL, NP13ZL, NP14ZL, NP15ZL)

Horizontal Lens Shift Max (Left) = 0.30W (NP12ZL, NP13ZL, NP14ZL, NP15ZL)

Horizontal Lens Shift Max (Right) = 0.30W (NP40ZL, NP41ZL, NP43ZL)

Horizontal Lens Shift Max (Left) = 0.30W (NP40ZL, NP41ZL, NP43ZL)

Distance Chart for popular 16:10 Screens (WUXGA)

Screen Size (16:10)			Rear Lens	Zoom Lenses											
				NP11FL	NP50ZL	NP12ZL	NP13ZL	NP14ZL	NP15ZL	NP40ZL	NP41ZL	NP43ZL			
Diagonal	Width(W)	Height (H)		0.79:1	0.6 - 0.75:1	1.16 - 1.52:1	1.46 - 2.95:1	2.90 - 4.64:1	4.60 - 7.02:1	0.79 - 1.11:1	1.30 - 3.02:1	2.99 - 5.93:1			
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches			
40	34	21	26.02	19.3 - 24.4	38.4 - 50.5	48.5 - 98.8	N/A - N/A	N/A - N/A	N/A - N/A	N/A - N/A	N/A - N/A	N/A - N/A	N/A - N/A	N/A - N/A	N/A - N/A
60	51	32	39.71	29.9 - 37.6	58.5 - 76.6	73.7 - 149.1	145.8 - 236.2	230.5 - 354.4	39.5 - 55.9	65.6 - 152.8	154.2 - 303.4	154.2 - 303.4	154.2 - 303.4	154.2 - 303.4	154.2 - 303.4
67	57	36	44.50	33.6 - 42.2	65.5 - 85.8	82.6 - 166.8	163.4 - 264.3	258.3 - 396.6	44.3 - 62.6	73.4 - 170.8	171.6 - 338.3	171.6 - 338.3	171.6 - 338.3	171.6 - 338.3	171.6 - 338.3
72	61	38	47.92	36.3 - 45.5	70.6 - 92.3	88.9 - 179.4	175.9 - 284.4	278.2 - 426.8	47.7 - 67.4	79.0 - 183.7	184.0 - 363.2	184.0 - 363.2	184.0 - 363.2	184.0 - 363.2	184.0 - 363.2
84	71	45	56.13	42.7 - 53.5	82.6 - 108.0	104.0 - 209.6	206.1 - 332.6	325.8 - 499.2	55.9 - 78.9	92.5 - 214.6	213.8 - 423.0	213.8 - 423.0	213.8 - 423.0	213.8 - 423.0	213.8 - 423.0
94	80	50	62.97	48.0 - 60.1	92.7 - 121.0	116.6 - 234.8	231.2 - 372.8	365.5 - 559.5	62.8 - 88.5	103.7 - 240.3	238.6 - 472.9	238.6 - 472.9	238.6 - 472.9	238.6 - 472.9	238.6 - 472.9
100	85	53	67.08	51.2 - 64.0	98.7 - 128.9	124.2 - 249.9	246.2 - 396.9	389.3 - 595.7	66.9 - 94.3	110.4 - 255.7	253.5 - 502.8	253.5 - 502.8	253.5 - 502.8	253.5 - 502.8	253.5 - 502.8
120	102	64	80.77	61.8 - 77.2	118.8 - 155.0	149.4 - 300.3	296.5 - 477.2	468.7 - 716.4	80.6 - 113.5	132.9 - 307.2	303.2 - 602.5	303.2 - 602.5	303.2 - 602.5	303.2 - 602.5	303.2 - 602.5
150	127	79	N/A	77.7 - 97.1	148.9 - 194.2	187.3 - 375.8	371.8 - 597.7	587.8 - 897.4	101.1 - 142.2	166.5 - 384.4	377.7 - 752.0	377.7 - 752.0	377.7 - 752.0	377.7 - 752.0	377.7 - 752.0
180	153	95	N/A	93.6 - 116.9	179.1 - 233.4	225.2 - 451.4	447.1 - 718.2	706.9 - 1078.4	121.6 - 171.0	200.2 - 461.6	452.2 - 901.5	452.2 - 901.5	452.2 - 901.5	452.2 - 901.5	452.2 - 901.5
210	178	111	N/A	109.5 - 136.7	209.2 - 272.6	263.0 - 526.9	522.4 - 838.7	826.0 - 1259.4	142.2 - 199.8	233.8 - 538.8	526.7 - 1051.1	526.7 - 1051.1	526.7 - 1051.1	526.7 - 1051.1	526.7 - 1051.1
240	204	127	N/A	125.5 - 156.5	239.4 - 311.8	300.9 - 602.5	597.8 - 959.2	945.0 - 1440.4	162.7 - 228.5	267.5 - 615.9	601.3 - 1200.6	601.3 - 1200.6	601.3 - 1200.6	601.3 - 1200.6	601.3 - 1200.6
270	229	143	N/A	141.4 - 176.3	269.5 - 351.0	338.7 - 678.0	673.1 - 1079.7	1064.1 - 1621.4	183.2 - 257.3	301.1 - 693.1	675.8 - 1350.1	675.8 - 1350.1	675.8 - 1350.1	675.8 - 1350.1	675.8 - 1350.1
300	254	159	N/A	157.3 - 196.2	299.7 - 390.2	376.6 - 753.6	748.4 - 1200.2	1183.2 - 1802.4	203.8 - 286.1	334.8 - 770.3	750.3 - 1499.7	750.3 - 1499.7	750.3 - 1499.7	750.3 - 1499.7	750.3 - 1499.7
400	339	212	N/A	210.4 - 262.2	400.2 - 520.9	502.8 - 1005.4	999.5 - 1601.9	1580.2 - 2405.8	272.2 - 382.0	447.0 - 1027.6	998.7 - 1998.1	998.7 - 1998.1	998.7 - 1998.1	998.7 - 1998.1	998.7 - 1998.1
500	424	265	N/A	263.5 - 328.3	500.6 - 651.6	628.9 - 1257.3	1250.6 - 2003.6	1977.1 - 3009.1	340.6 - 477.9	559.2 - 1284.9	1247.0 - 2496.6	1247.0 - 2496.6	1247.0 - 2496.6	1247.0 - 2496.6	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 $\pm 5\%$.

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Formulas: 16:10 Aspect Ratio (WUXGA)

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Projection Formulas:

NP44ML-01LK: $A = (0.339 * W) - 25.2$
 $B = ((0.844 * W) + 6.614) - (0.5 * H)$
 $C = (0.339 * W) - 1.333$
 $D = (0.219 * W) - 1.791$
 $E = (0.219 * W) + 6.562$

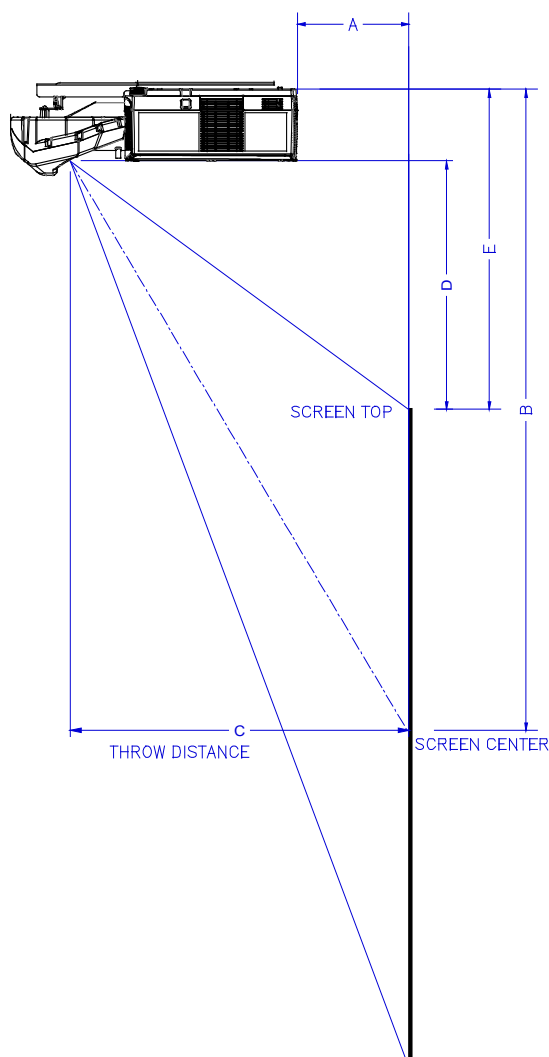
Definitions:

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

16:10 Screen Formulas

$W = H \times 16/10$
 $H = W \times 10/16$
Screen Diagonal = $W \times 18.868/16$

Distance Chart for popular 16:10 Screens (WUXGA) with NP44ML-01LK Installation



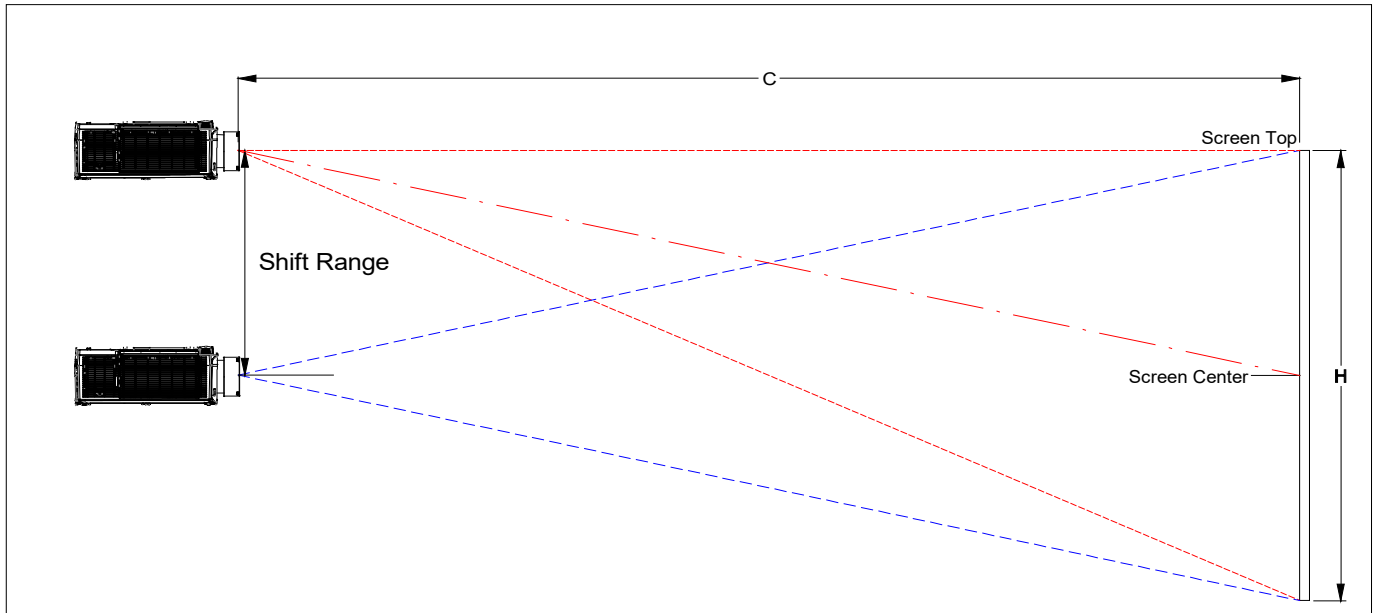
Screen Size (16:10)			A	B	C	D	E
Diagonal	Width(W)	Height (H)					
inches	inches	inches	inches	inches	inches	inches	inches
108	92	57	5.8	55.3	29.7	18.3	26.6
118	100	63	8.7	59.8	32.6	20.1	28.5
130	110	69	12.2	65.2	36.0	22.4	30.7
137	116	73	14.2	68.4	38.1	23.7	32.0
164	139	87	21.9	80.5	45.8	28.7	37.0
189	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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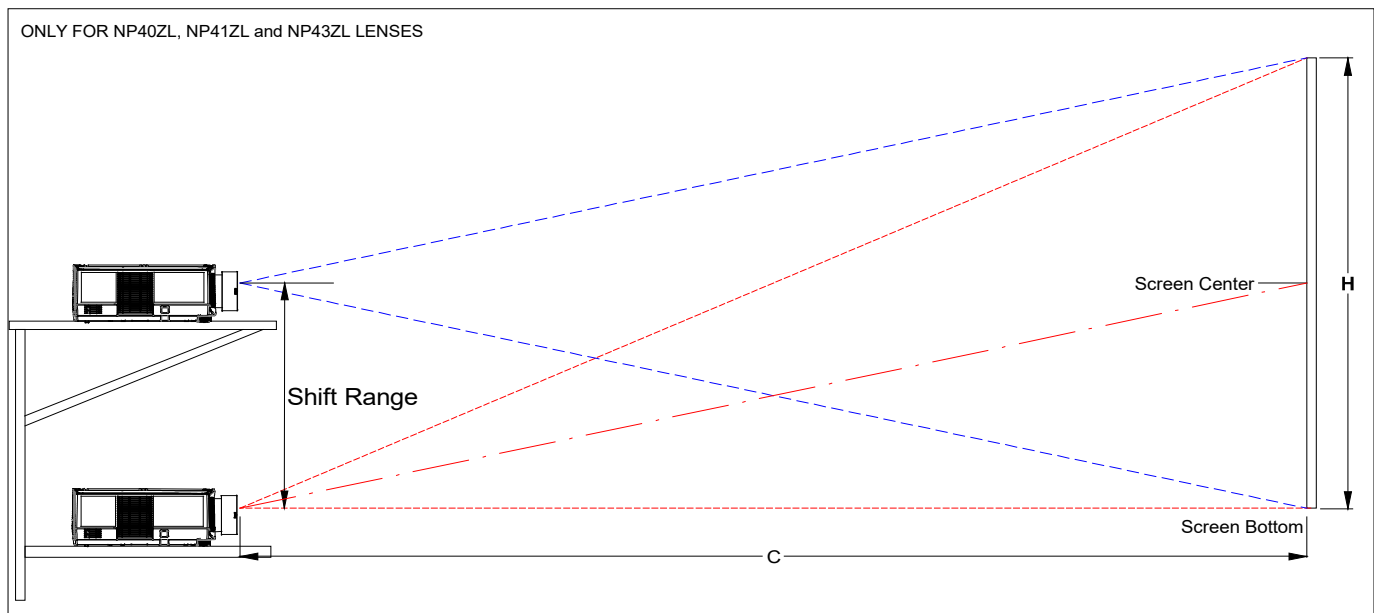
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Ceiling Mount Installation



Desktop Installation

ONLY FOR NP40ZL, NP41ZL and NP43ZL LENSES



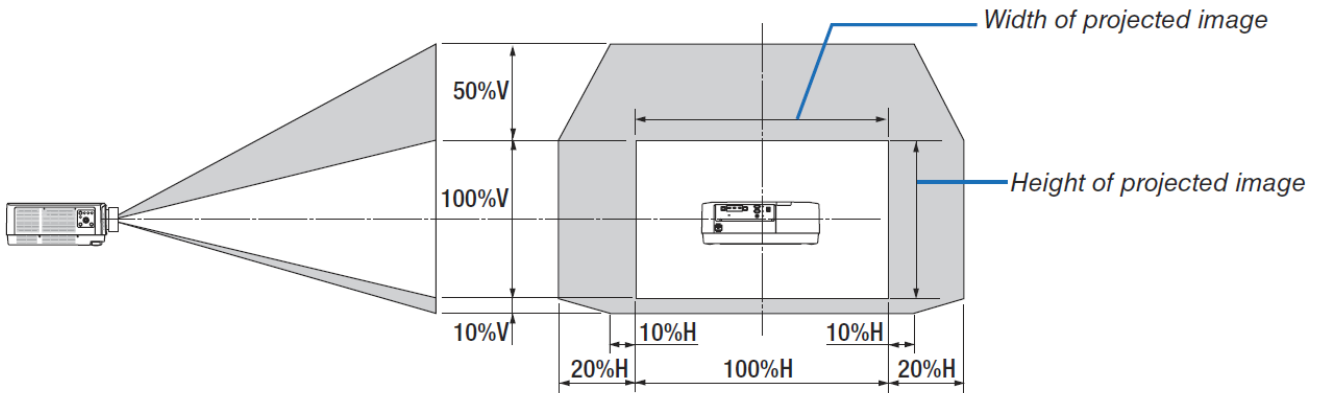
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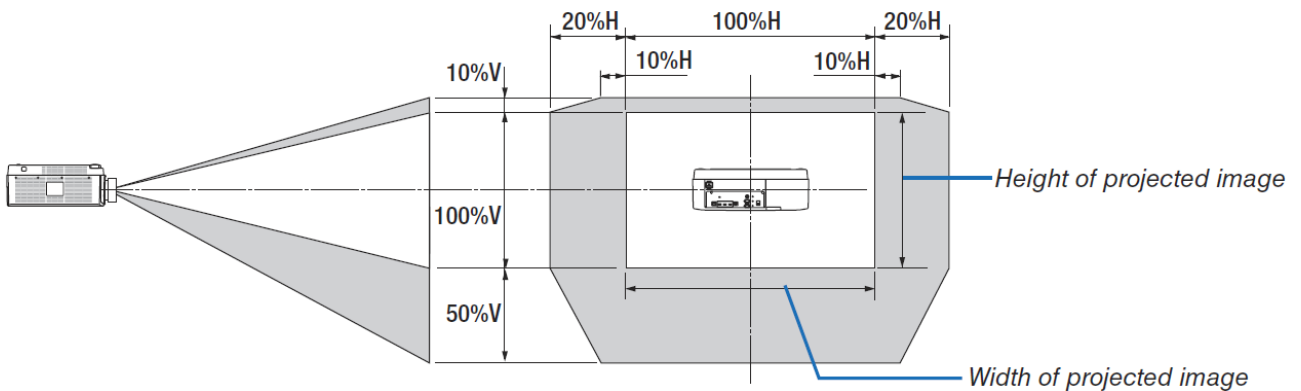
Desktop and Ceiling Mount

Lens Shift Adjustable Range

Desk/front projection



Ceiling/front projector



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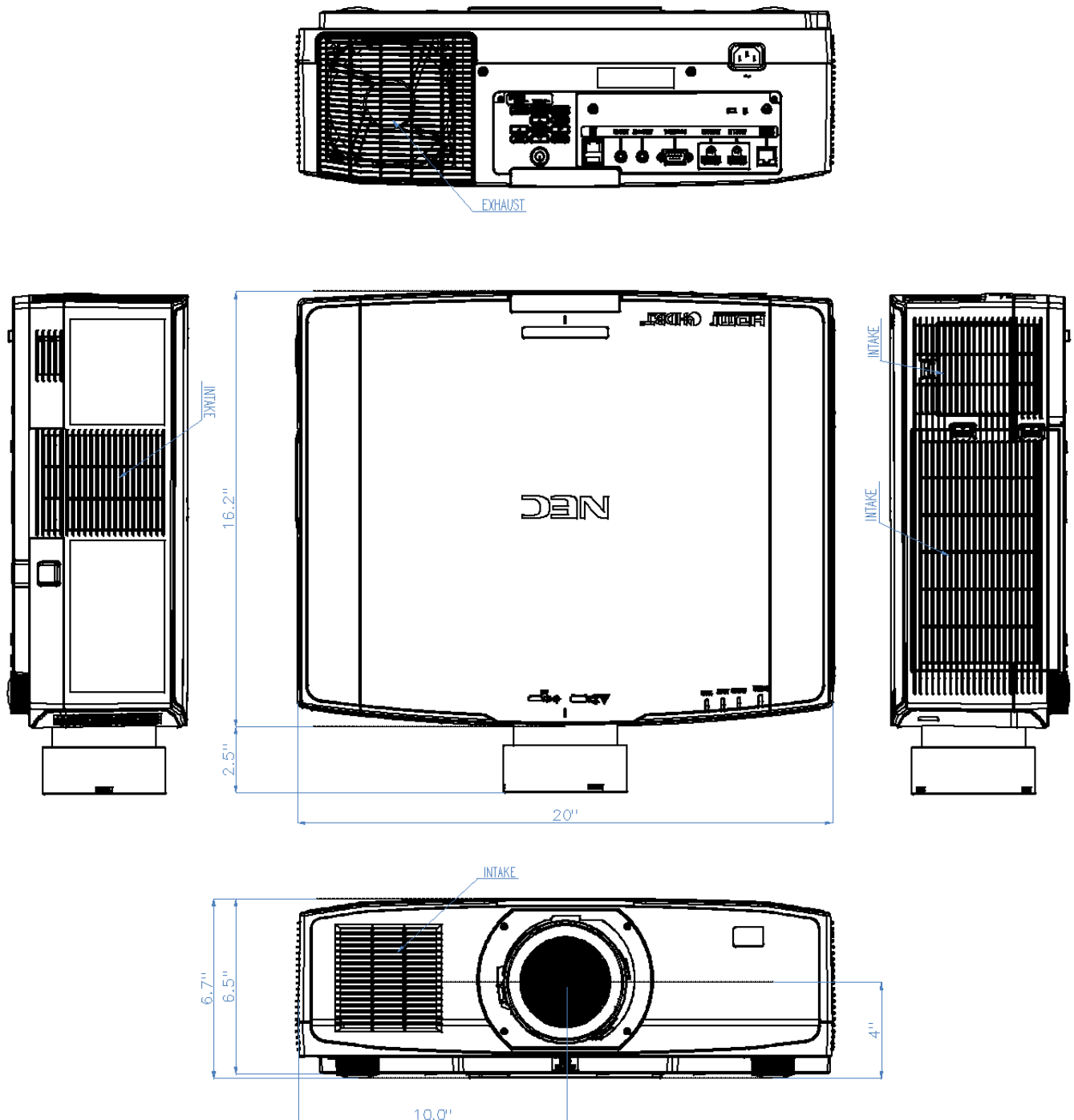
Desktop and Ceiling Mount

Cabinet Dimensions

The following diagrams show the cabinet dimensions for the PV710UL/PV800UL.

Dimensions are in inches. For millimeters multiply by 25.4.

Note: Dimensions below shown with the NP41ZL lens



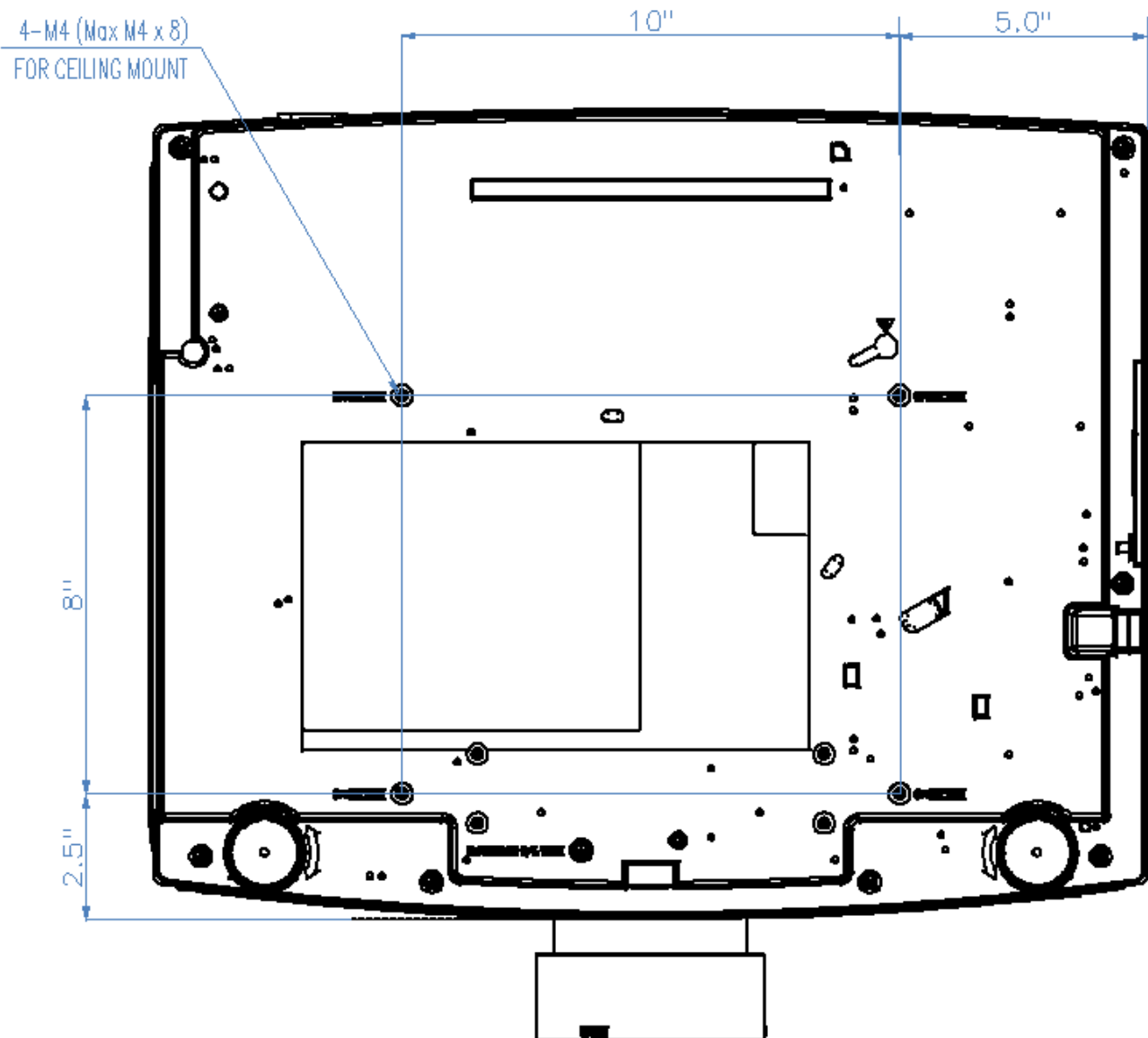
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Cabinet Dimensions

Shown with NP41ZL



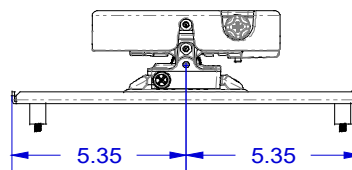
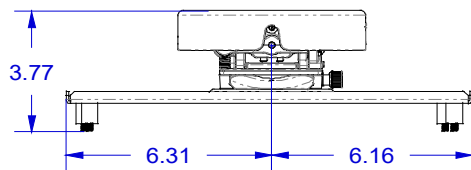
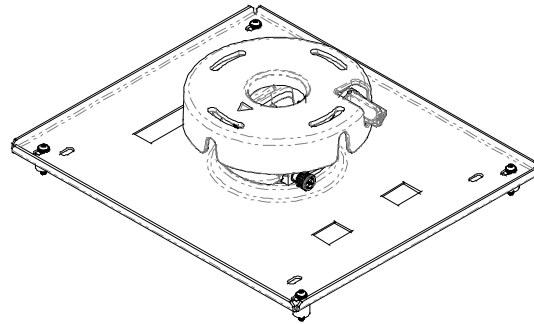
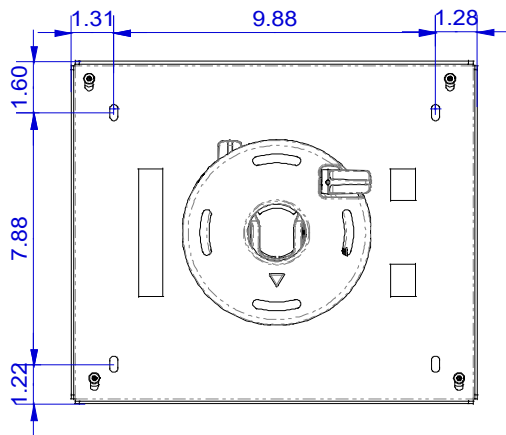
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Desktop and Ceiling Mount

Optional Ceiling Mount Dimensions (Part #: PA600CM)

The following diagrams show ceiling mount dimensions for the PA600CM. Dimensions are in inches. For millimeters multiply by 25.4.

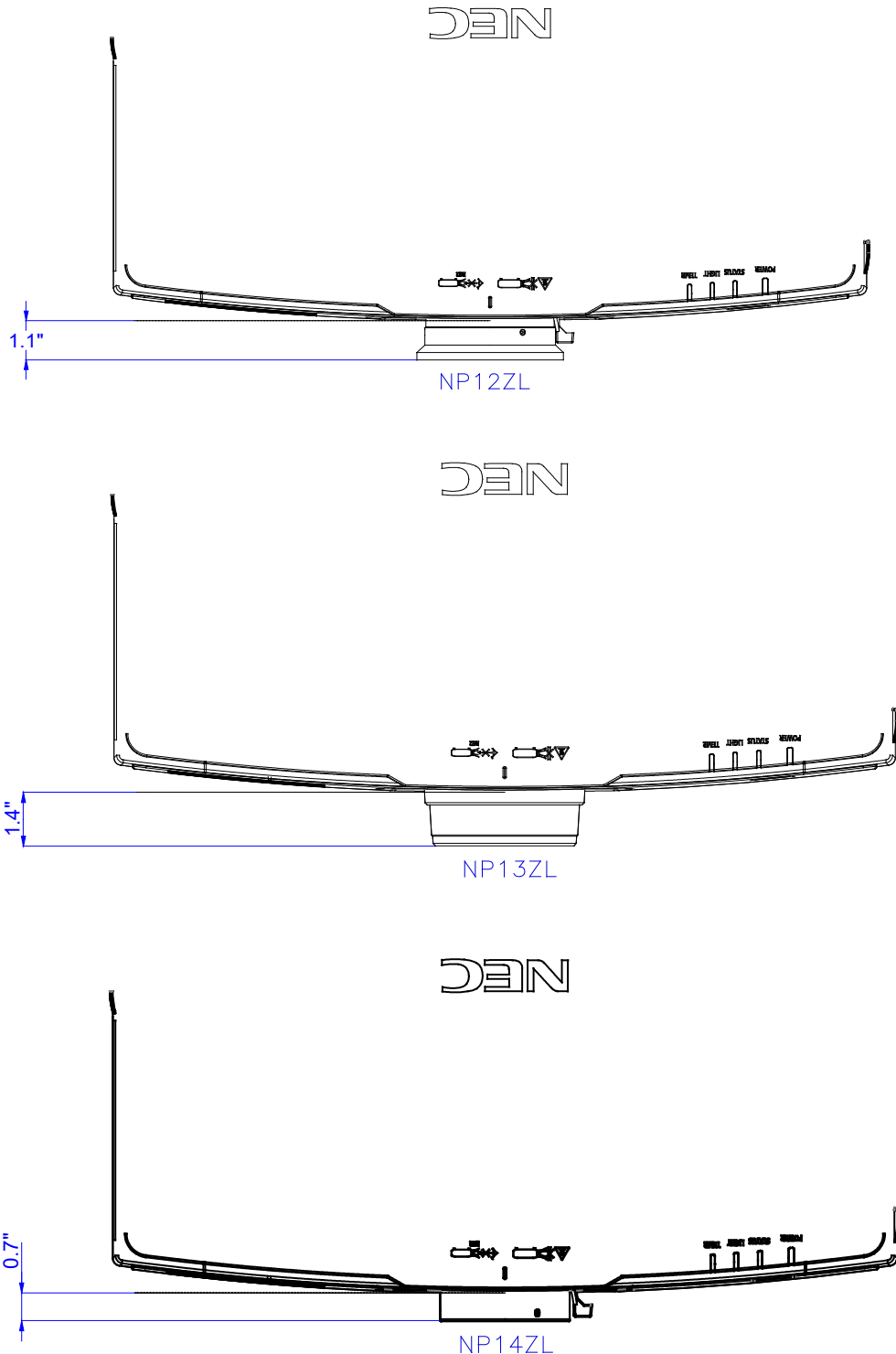


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Desktop and Ceiling Mount

Optional Lens Dimensions (NP12ZL, NP13ZL and NP14ZL)

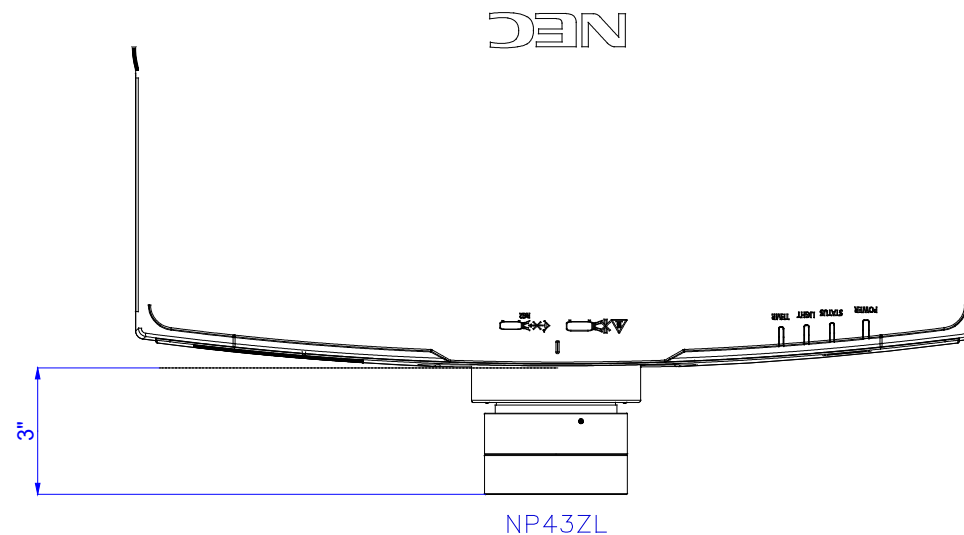
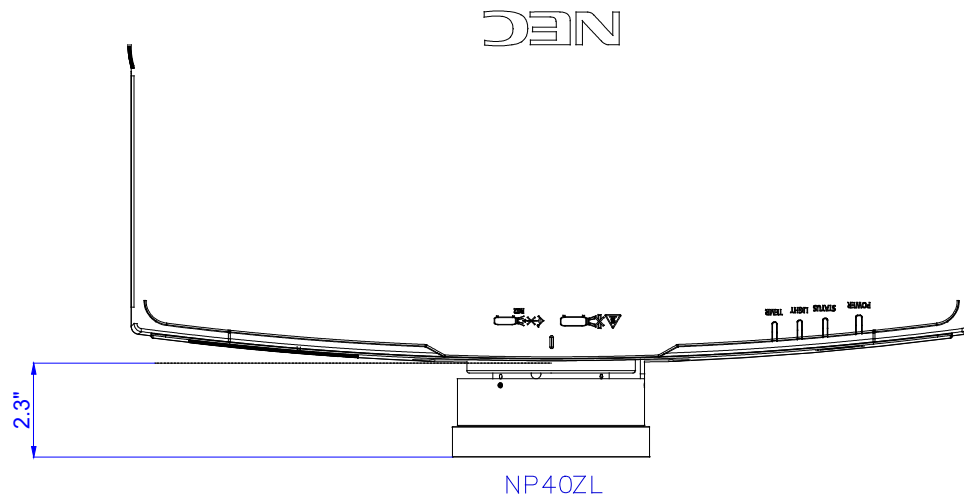
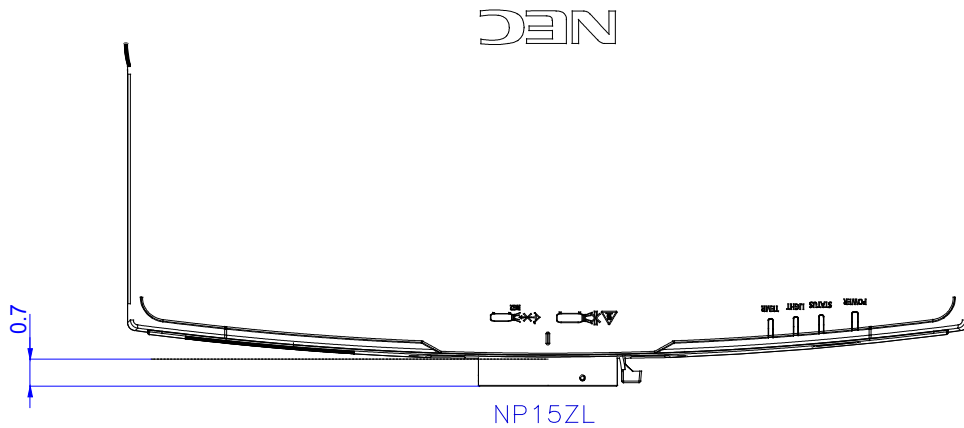


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Optional Lens Dimensions (NP15ZL, NP40ZL and NP41ZL)

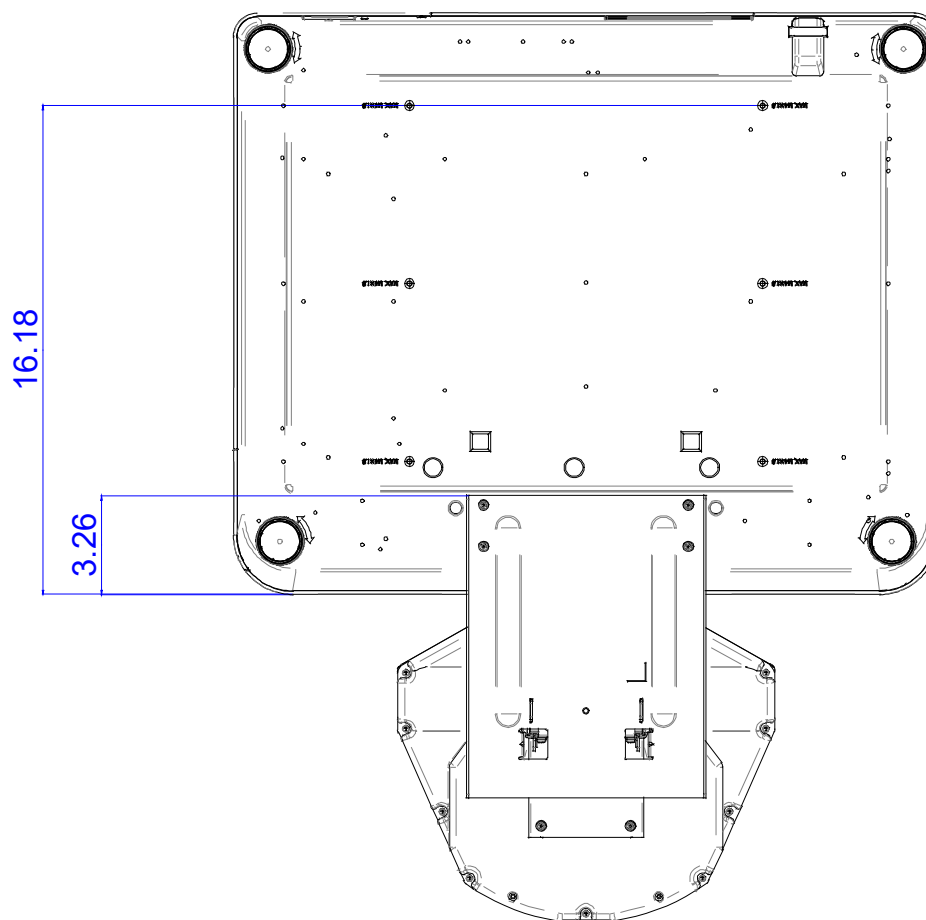
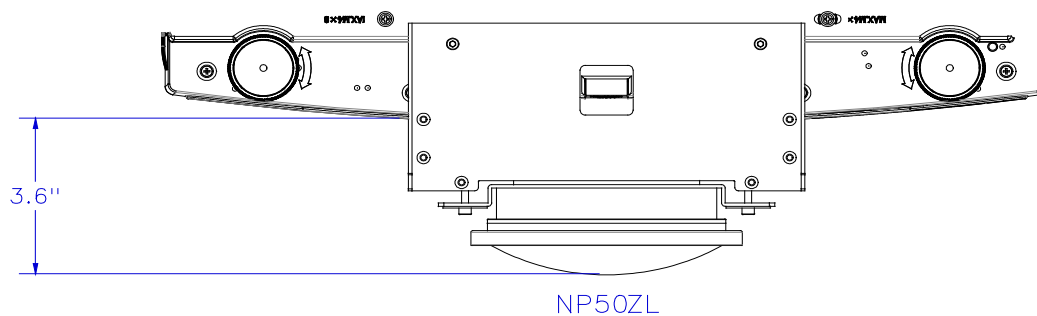


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Optional Lens Dimensions (NP50ZL and NP44ML-01LK)

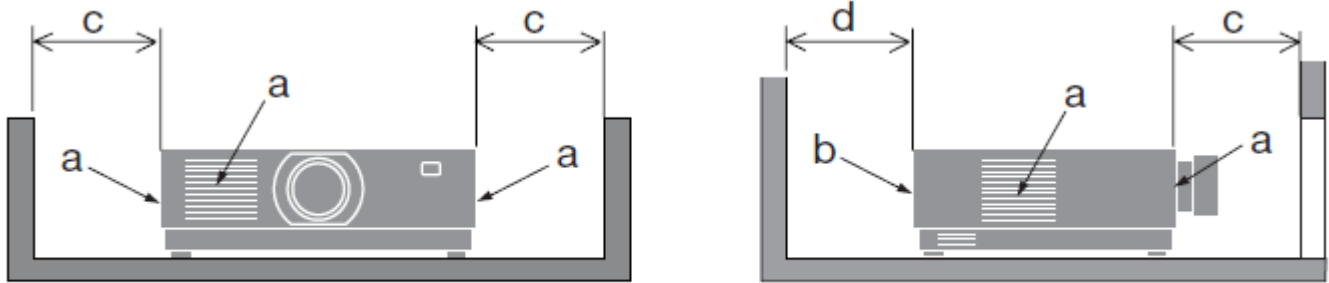


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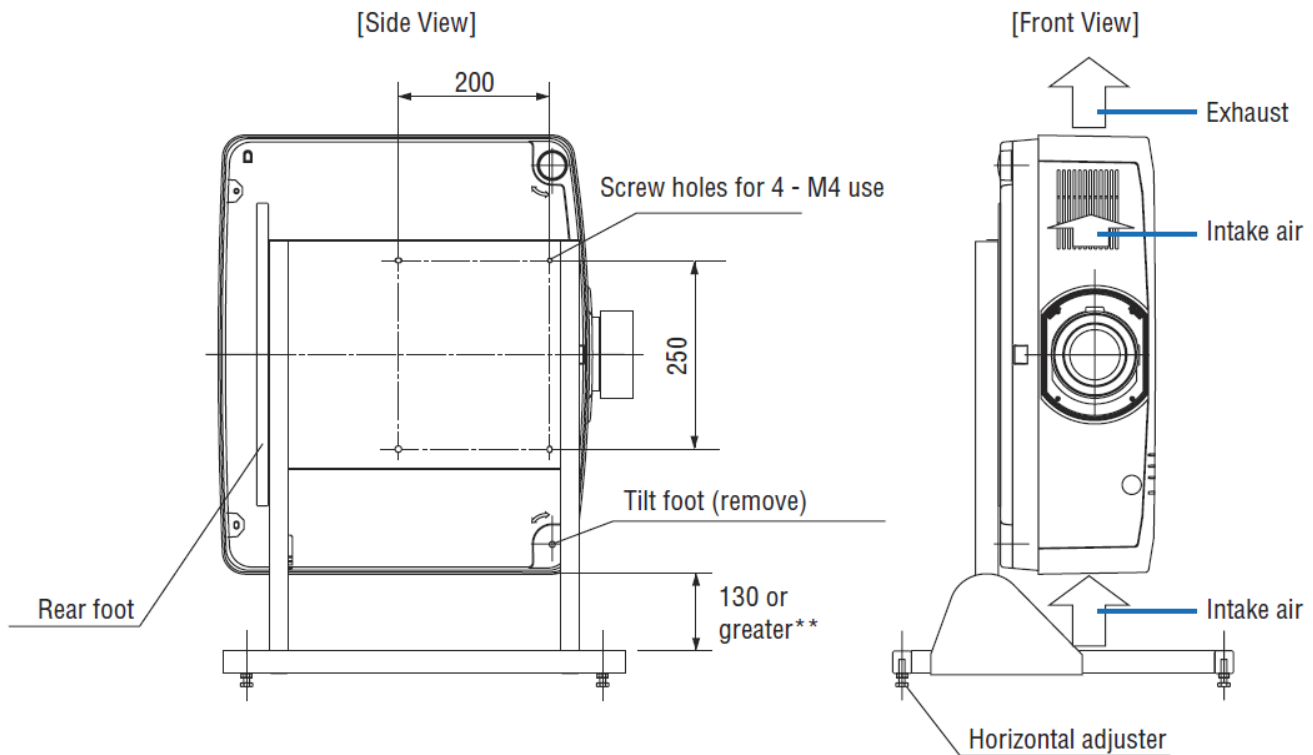
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Ventilation Requirements



a: Intake vent / b: Exhaust vent / c: 20 cm/8" or greater / d: 30 cm/12" or greater

Portrait Requirements



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Regulatory Labels

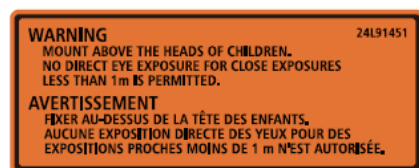
Label 1

Laser Explanatory Label



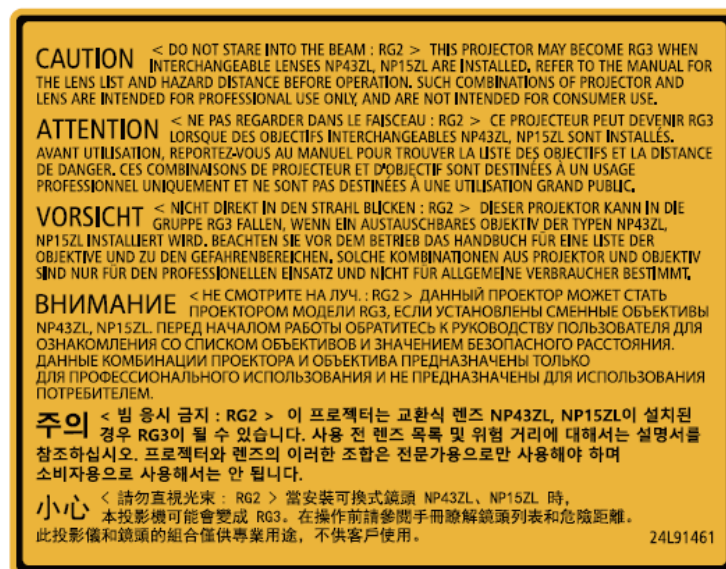
Label 2

FDA additional warning label



Label 3

Lens replacement caution label



Input Panel



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PC Control Codes

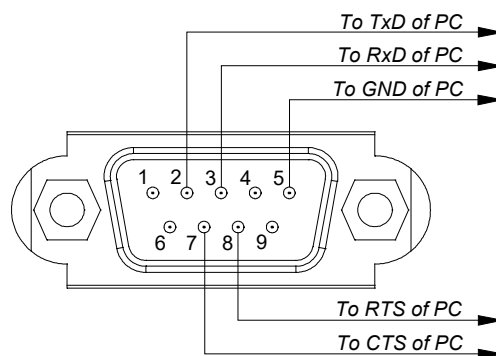
Function	Code Data								
POWER ON	02H	00H	00H	00H	00H	02H			
POWER OFF	02H	01H	00H	00H	00H	03H			
INPUT SELECT HDMI1	02H	03H	00H	00H	02H	01H	A1H	A9H	
INPUT SELECT HDMI2	02H	03H	00H	00H	02H	01H	A2H	AAH	
INPUT SELECT HDBaseT	02H	03H	00H	00H	02H	01H	BFH	C7H	
PICTURE MUTE ON	02H	10H	00H	00H	00H	12H			
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.