

NP4000 Installation Guide

Desktop and Ceiling Mount

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Product Description

Type:	1 chip DLP Projector 0.7 DMD	Dimensions:	19.88" (W) x 15.16" (H) x 8.23" (D)
Resolution:	1024 x 768 (4:3) / 1024 x 576 (16:9)	Weight:	36.4 lbs
Powered:	Lens Shift, Horizontal & Vertical /Zoom/ Focus	Brightness:	NP4000 – 5200 ANSI Lumens
Fan Noise:	36 dB / 34dB @ 1 meter	BTU's:	2027 BTU/hour
Network Ready		Power Consumption:	655W (max)

Lens Specifications

NP06FL:	Throw Ratio: ~ 0.77:1	Focal Length: 11.4mm	NP09ZL:	Throw Ratio: ~2.22 - 4.43:1	Focal Length: 32.0 – 63.0mm
	Screen Sizes: 50"-200"	F/#:2.0		Screen Sizes: 40" - 500"	F/#:2.1 – 2.9
NP07ZL:	Throw Ratio: ~1.33 - 1.79:1	Focal Length: 19.3 - 25.8mm	NP10ZL:	Throw Ratio: 4.43 -8.3:1	Focal Length: 48.8 - 77.6mm
	Screen Sizes: 40" - 500"	F/#:1.8 – 2.3		Screen Sizes: 40" - 500"	F/#:2.2 – 3.1
NP08ZL:	Throw Ratio: ~1.78 - 2.35:1	Focal Length: 26.0 - 34.0mm			
	Screen Sizes: 40" – 500"	F/#:1.7 – 1.9			

Screen/Aspect Ratio

Both 4:3 and 16:9 screens are fully supported with proper aspect ratio control for both type sources using NEC developed scaling technology. Menu selections have 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.
- All calculations are based on 4:3 aspect ratio.
- Distances are in inches, for millimeters multiply by 25.4.
- Distances may vary ±5%.

Formulas

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:

NP06FL:	C = 0.808W – 1.654	
NP07ZL:	C (Wide) = 1.361W – 1.850	C (Tele) = 1.831W – 1.811
NP08ZL:	C (Wide) = 1.823W – 2.520	C (Tele) = 2.403W – 2.441
NP09ZL:	C (Wide) = 2.298W – 4.134	C (Tele) = 4.579W – 4.213
NP10ZL:	C (Wide) = 4.516W – 5.315	C (Tele) = 8.514W – 5.512

Definitions:

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

4:3 Screen Formulas:

W = H x 4/3
 H = W x 3/4
 Diagonal = W x 5/4

16:9 Screen Formulas:

W = H x 16/9
 H = W x 9/16
 Screen Diagonal = W x 18.358/16

Note: Tilting the front of the projector from level up or down by more than 45° could reduce lamp life up to 20%.

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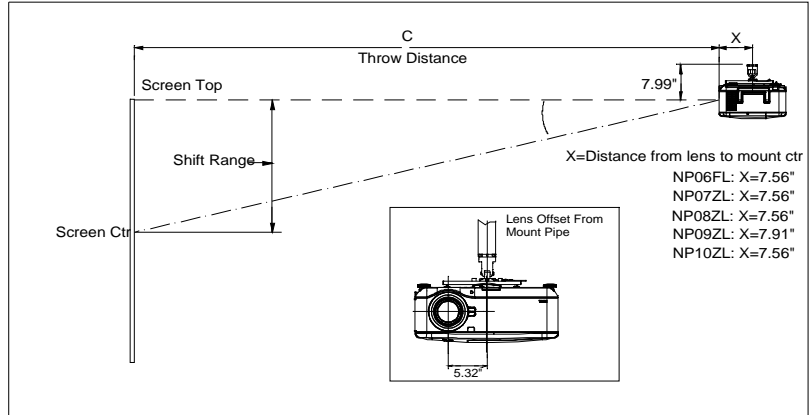
Projection Distance and Screen Size for Ceiling Mount

The following shows the proper relative positions of the projector and screen. Refer to the table to determine the position of installation.

Distances are in inches. For millimeters multiply by 25.4.

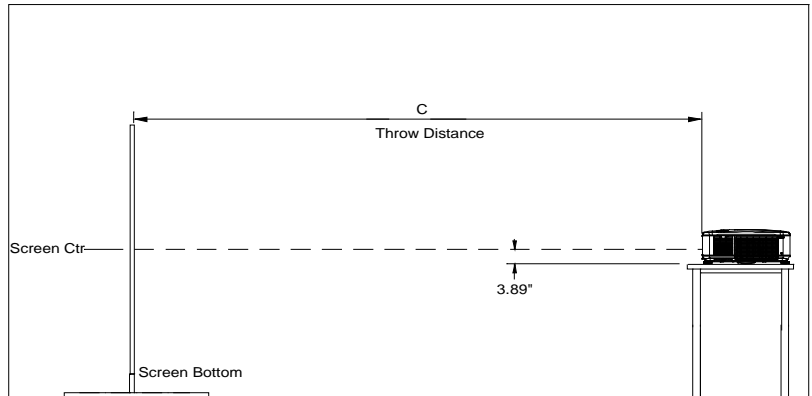
Note: To achieve a 4x3 image, you must select 4x3 for each incoming signal in the OSM.
MENU>IMAGE OPTIONS>ASPECT RATIO

Ceiling Mount Installation



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Note: Lens shift feature is not available with NP06FL (rear lens) NP06FL should be used only for "zero degree" / "no-offset" applications.



Distance Chart for popular 4:3 screens

Screen Size (4:3)			Rear Lens	Zoom Lenses			
Diagonal	Width(W)	Height (H)	NP06FL	NP07ZL	NP08ZL	NP09ZL	NP10ZL
inches	inches	inches	inches	inches	inches	inches	inches
40	32	24	24.20	NA	NA	NA	NA
60	48	36	37.13	63.48 - 86.1	85.0 - 112.9	106.2 - 215.6	211.5 - 403.2
67	53.6	40.2	41.65	71.10 - 96.3	95.2 - 126.4	119.0 - 241.2	236.7 - 450.8
72	57.6	43.2	44.89	76.54 - 103.7	102.5 - 136.0	128.2 - 259.5	254.8 - 484.9
84	67.2	50.4	52.64	89.61 - 121.2	120.0 - 159.0	150.3 - 303.5	298.2 - 566.6
90	72	54	56.52	96.14 - 130.0	128.7 - 170.6	161.3 - 325.5	319.8 - 607.5
100	80	60	62.99	107.03 - 144.7	143.3 - 189.8	179.7 - 362.1	356.0 - 675.6
120	96	72	75.91	128.81 - 174.0	172.5 - 228.2	216.5 - 435.4	428.2 - 811.8
150	120	90	95.31	161.47 - 217.9	216.2 - 285.9	271.6 - 545.3	536.6 - 1016.2
180	144	108	114.70	194.13 - 261.9	260.0 - 343.6	326.8 - 655.2	645.0 - 1220.5
210	168	126	NA	226.80 - 305.8	303.7 - 401.3	381.9 - 765.1	753.4 - 1424.8
240	192	144	NA	259.46 - 349.7	347.5 - 458.9	437.1 - 875.0	861.8 - 1629.2
270	216	162	NA	292.13 - 393.7	391.2 - 516.6	492.2 - 984.9	970.1 - 1833.5
300	240	180	NA	324.79 - 437.6	435.0 - 574.3	547.4 - 1094.7	1078.5 - 2037.8
400	320	240	NA	433.67 - 584.1	580.8 - 766.5	731.2 - 1461.1	1439.8 - 2719.0
500	400	300	NA	542.55 - 730.6	726.7 - 958.8	915.1 - 1827.4	1801.1 - 3400.1

Note: For screen sizes not indicated on the projection tables, use the formulas on page 1.

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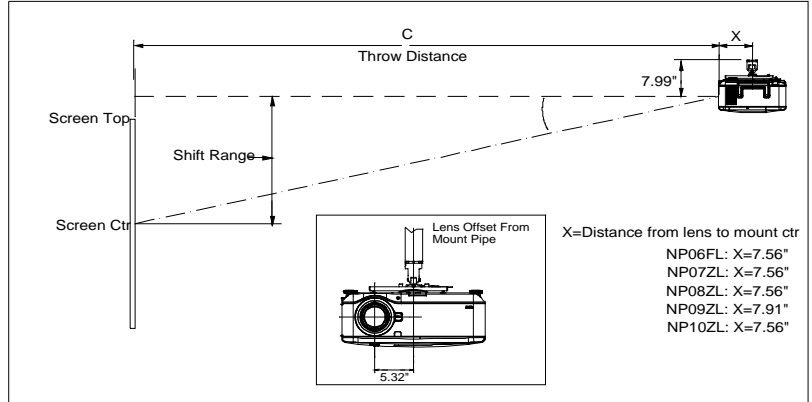
Projection Distance and Screen Size for Ceiling Mount

The following shows the proper relative positions of the projector and screen. Refer to the table to determine the position of installation.

Distances are in inches. For millimeters multiply by 25.4.

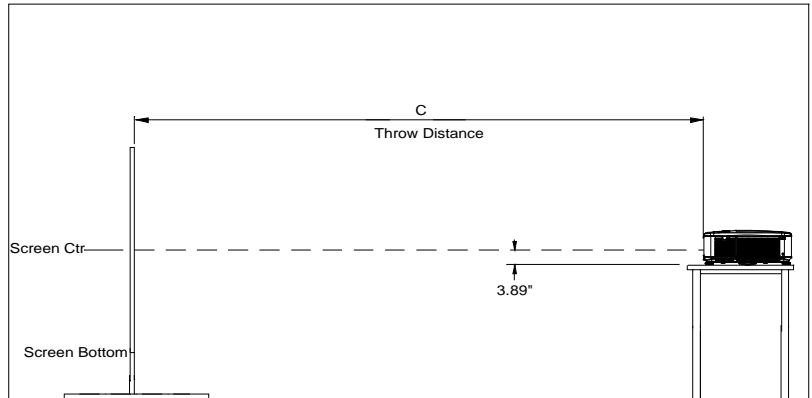
Note: To achieve a 16x9 image, you must select 16x9 for each incoming signal in the OSM.
MENU>IMAGE OPTIONS>ASPECT RATIO

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Note: Lens shift feature is not available with NP06FL (rear lens) NP06FL should be used only for "zero degree" / "no-offset" applications.



Distance Chart for popular 16:9 screens

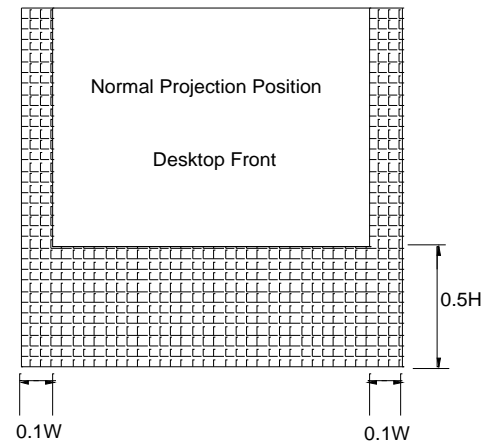
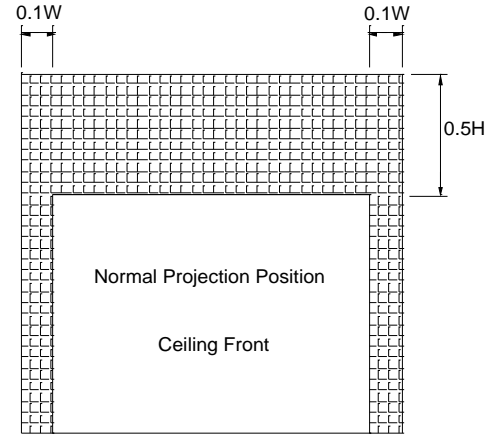
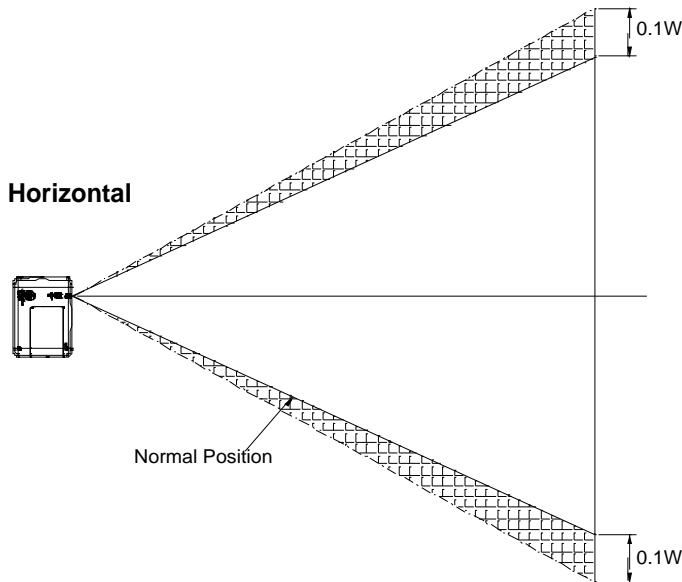
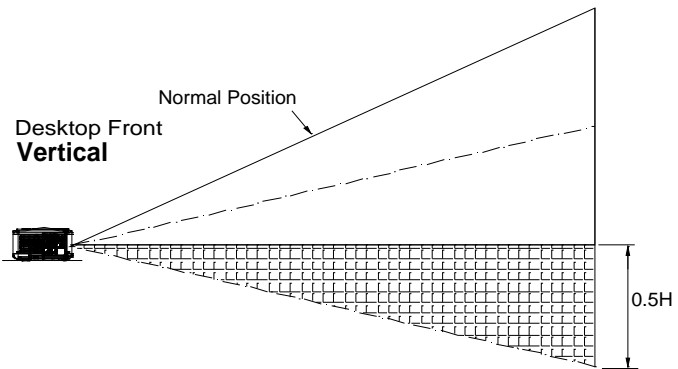
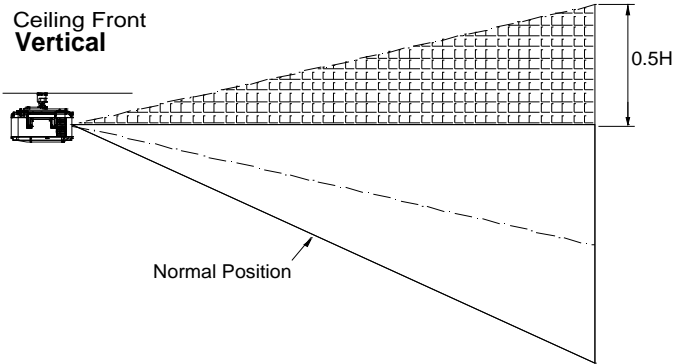
Screen Size (16:9)			Rear Lens	Zoom Lenses				
			NP06FL	NP07ZL	NP08ZL	NP09ZL	NP10ZL	
Diagonal	Width(W)	Height (H)	0.77:1	1.33 - 1.79:1	1.78 - 2.35:1	2.22 - 4.43:1	4.43 - 8.30:1	
inches	inches	inches	inches	inches	inches	inches	inches	
92	80	45	62.99	107.03 - 144.7	143.3 - 189.8	179.7 - 362.1	356.0 - 675.6	
100	87	49	68.64	116.56 - 157.5	156.1 - 206.6	195.8 - 394.2	387.6 - 735.2	
106	92	52	72.68	123.36 - 166.6	165.2 - 218.6	207.3 - 417.1	410.2 - 777.8	
110	96	54	75.91	128.81 - 174.0	172.5 - 228.2	216.5 - 435.4	428.2 - 811.8	
119	104	58.8	82.38	139.69 - 188.6	187.1 - 247.5	234.9 - 472.0	464.3 - 879.9	
123	107	60	84.80	143.78 - 194.1	192.5 - 254.7	241.8 - 485.7	477.9 - 905.5	
133	116	65	92.07	156.03 - 210.6	208.9 - 276.3	262.4 - 527.0	518.5 - 982.1	
135	118	66	93.69	158.75 - 214.2	212.6 - 281.1	267.0 - 536.1	527.6 - 999.1	
159	139	78	110.66	187.33 - 252.7	250.9 - 331.6	315.3 - 632.3	622.4 - 1177.9	
161	140	79	111.47	188.69 - 254.5	252.7 - 334.0	317.6 - 636.8	626.9 - 1186.4	
229	200	113	NA	270.35 - 364.4	362.1 - 478.2	455.5 - 911.6	897.9 - 1697.3	
275	240	135	NA	324.79 - 437.6	435.0 - 574.3	547.4 - 1094.7	1078.5 - 2037.8	
367	320	180	NA	433.67 - 584.1	580.8 - 766.5	731.2 - 1461.1	1439.8 - 2719.0	
459	400	225	NA	542.55 - 730.6	726.7 - 958.8	915.1 - 1827.4	1801.1 - 3400.1	

Note: For screen sizes not indicated on the projection tables, use the formulas on page 1.

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Lens Shift Adjustable Range



Lens Shift Range for Desktop and Ceiling Mount Application

The diagram below 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 not available with NP06FL (rear lens). NP06FL should be used only for "zero degree" / "no-offset" applications.

Maximum Possible Range for Standard Lens/NP07ZL/NP08ZL/NP09ZL/NP10ZL:

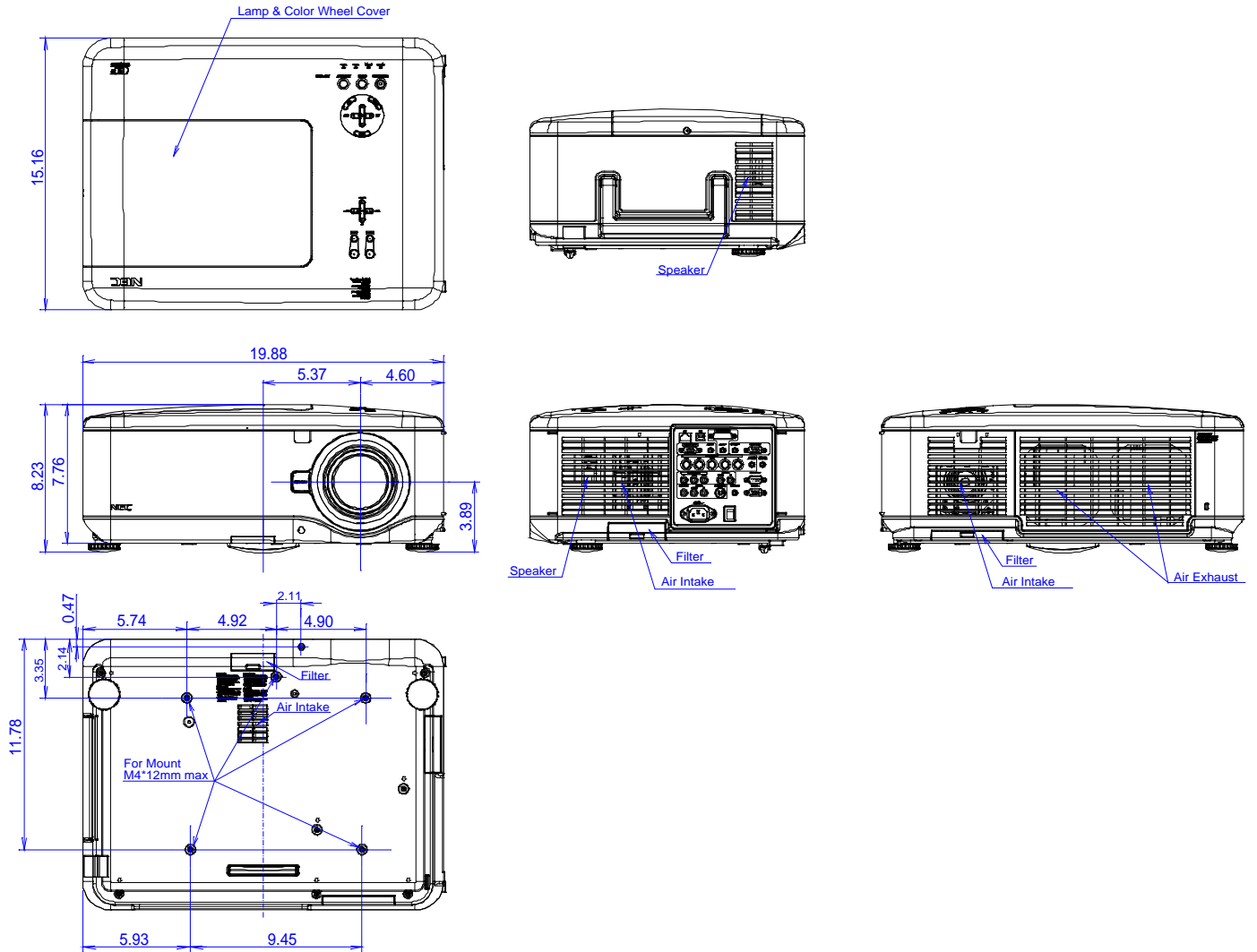
- Up: 0.5H
 - Right: 0.10W
 - Left: 0.10W
- (W: width of projected image, H: height of projected image)

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Cabinet Dimensions

The following diagrams show the cabinet dimensions for the NP4000. Dimensions are in inches. For millimeters multiply by 25.4.



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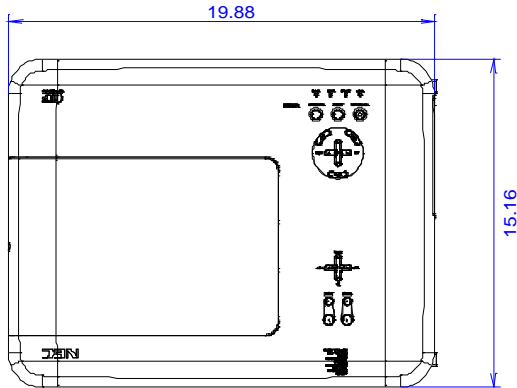
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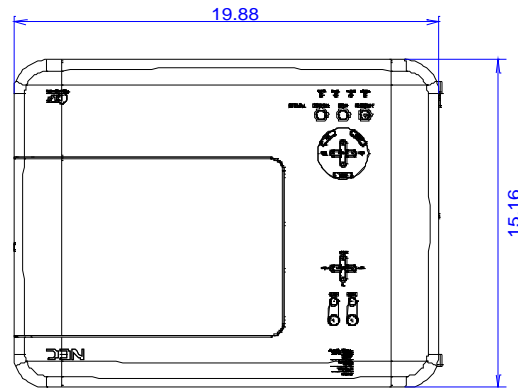
Lens Dimensions

The following drawings show the added dimensions for the optional lenses
Dimensions are in inches. For millimeters multiply by 25.4.

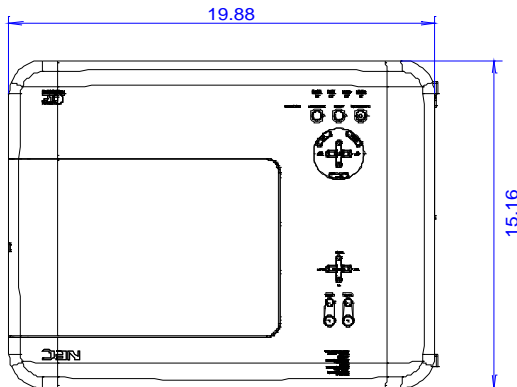
NP06FL



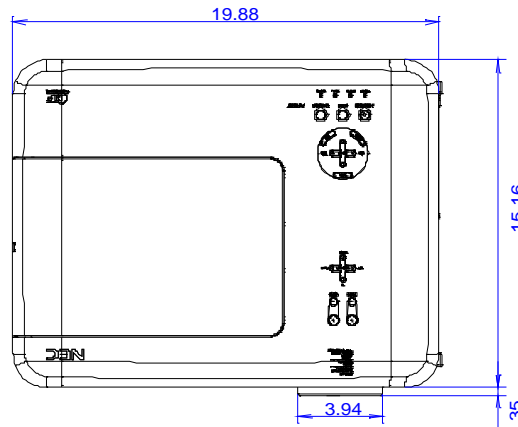
NP07ZL



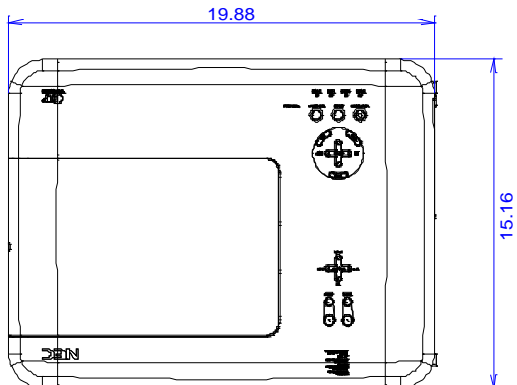
NP08ZL



NP09ZL



NP10ZL



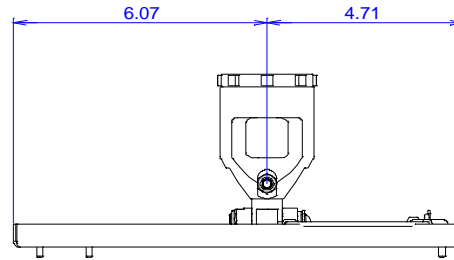
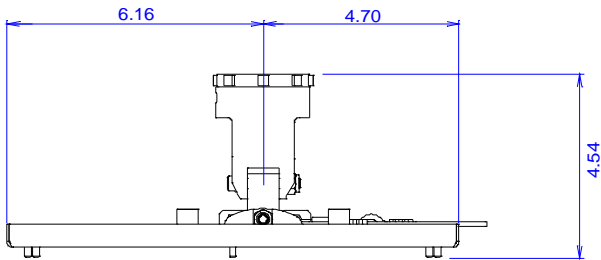
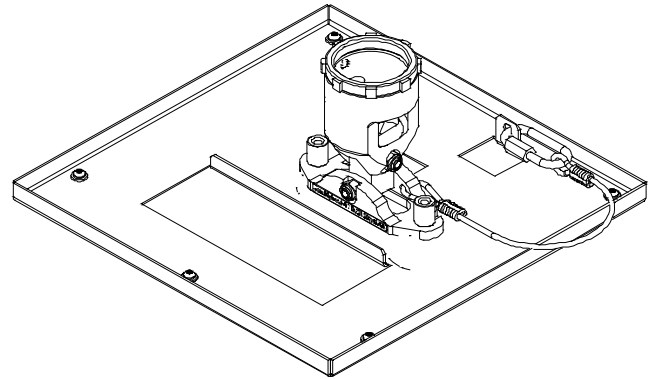
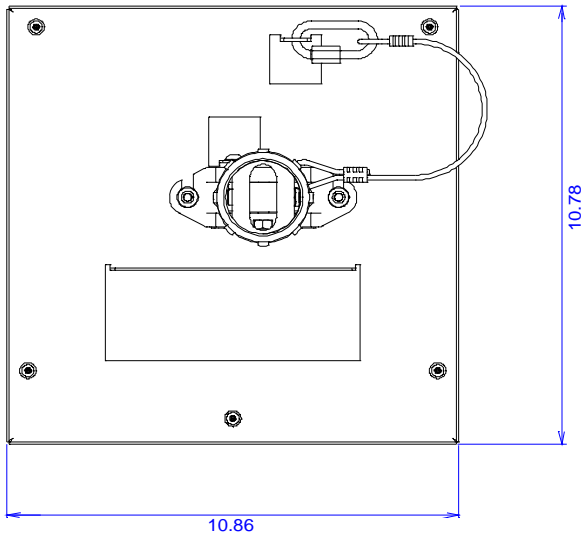
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Optional Ceiling Mount Dimensions (Model #: NP4000CM)

The following diagrams show ceiling mount dimensions for the NP4000. Dimensions are in inches. For millimeters multiply by 25.4.

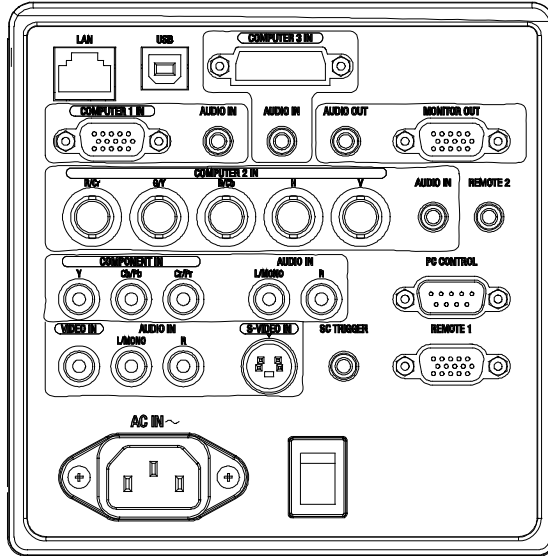


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Input Panel



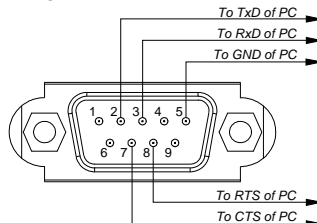
PC Control Codes

Function	Code Data
POWER ON	02H 00H 00H 00H 00H 02H
POWER OFF	02H 01H 00H 00H 00H 03H
INPUT SELECT RGB 1	02H 03H 00H 00H 02H 01H 01H 09H
INPUT SELECT RGB 2	02H 03H 00H 00H 02H 01H 02H 0AH
INPUT SELECT RGB 3	02H 03H 00H 00H 02H 01H 1AH 22H
INPUT SELECT COMPONENT	02H 03H 00H 00H 02H 01H 10H 18H
INPUT SELECT VIDEO	02H 03H 00H 00H 02H 01H 06H 0EH
INPUT SELECT S-VIDEO	02H 03H 00H 00H 02H 01H 0BH 13H
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
ASPECT RATIO 4:3	03H 10H 00H 00H 05H 18H 00H 00H 00H 00H 30H
ASPECT RATIO 16:9	03H 10H 00H 00H 05H 18H 00H 00H 02H 00H 32H
ASPECT RATIO CROP	03H 10H 00H 00H 05H 18H 00H 00H 03H 00H 33H
ASPECT RATIO NATIVE	03H 10H 00H 00H 05H 18H 00H 00H 0H 00H 3H
ASPECT RATIO NORMAL	03H 10H 00H 00H 05H 18H 00H 00H 05H 00H 35H
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: One bit
- X on/off: None
- Communications: Full Duplex



PC Control Connector (D-Sub 9P)

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

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