

NP4001 Installation Guide

Desktop and Ceiling Mount

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Product Description

Type:	1 chip DLP Projector	Dimensions:	19.88" (W) x 15.16" (H) x 8.23" (D)
	0.65 DMD	Weight:	36.4 lbs
Resolution:	1280 x 768 (15:9) / 1024 x 768 (4:3)	Brightness:	4500 ANSI Lumens
Powered:	Lens Shift, Horizontal & Vertical /Zoom/ Focus	BTU's:	2027 BTU/hour
Fan Noise:	36 dB / 34dB @ 1 meter	Power Consumption:	655W (max)
Network Ready			

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: 63.5 – 117.4mm
	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 = 0.818W – 1.654	
NP07ZL:	C (Wide) = 1.378W – 1.850	C (Tele) = 1.854W – 1.811
NP08ZL:	C (Wide) = 1.844W – 2.250	C (Tele) = 2.434W – 2.441
NP09ZL:	C (Wide) = 2.328W – 4.134	C (Tele) = 4.639W – 4.213
NP10ZL:	C (Wide) = 4.578W – 5.315	C (Tele) = 8.604W – 5.512

15:9 Screen Formulas:

$$W = H \times 15/9$$

$$H = W \times 9/15$$

$$\text{Diagonal} = W \times 17.493/15$$

Definitions:

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

16:9 Screen Formulas:

$$W = H \times 16/9$$

$$H = W \times 9/16$$

$$\text{Diagonal} = W \times 18.358/16$$

4:3 Screen Formulas:

$$W = H \times 4/3$$

$$H = W \times 3/4$$

$$\text{Screen Diagonal} = W \times 5/4$$

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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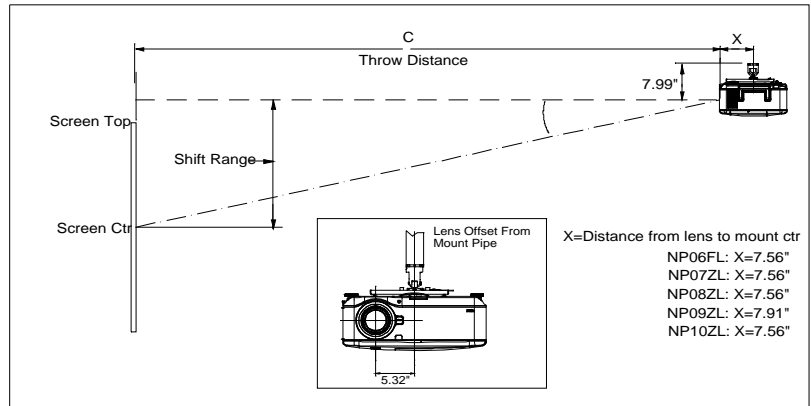
Projection Distance and Screen Size for Ceiling Mount

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 16x9 image, you must select 16x9 for each incoming signal in the OSM.

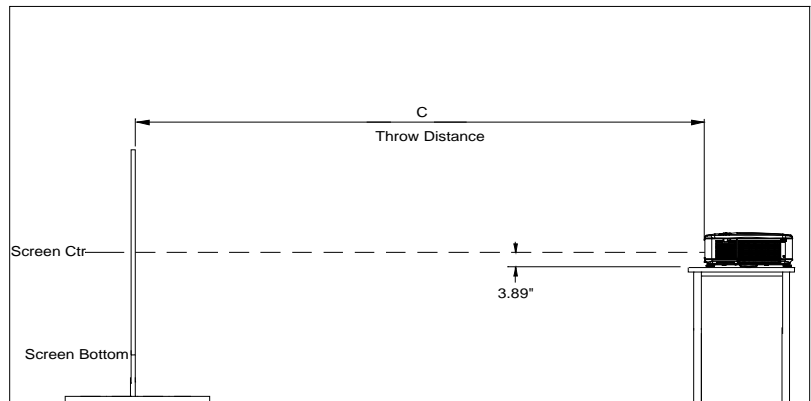
MENU>IMAGE OPTIONS>ASPECT RATIO

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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				
Diagonal	Width(W)	Height (H)	NP06FL	NP07ZL	NP08ZL	NP09ZL	NP10ZL	
inches	inches	inches	inches	inches		inches		inches
92	80	45	64	108 - 147	145 - 192	182 - 367	361 - 683	
100	87	49	70	118 - 159	158 - 209	198 - 399	393 - 743	
106	92	52	74	125 - 169	167 - 221	210 - 423	416 - 786	
110	96	54	77	130 - 176	175 - 231	219 - 441	434 - 820	
119	104	58.8	83	141 - 191	189 - 251	238 - 478	471 - 889	
123	107	60	86	146 - 197	195 - 258	245 - 492	485 - 915	
133	116	65	93	158 - 213	211 - 280	266 - 534	526 - 993	
135	118	66	95	161 - 217	215 - 285	271 - 543	535 - 1010	
159	139	78	112	190 - 256	254 - 336	319 - 641	631 - 1190	
161	140	79	113	191 - 258	256 - 338	322 - 645	636 - 1199	
229	200	113	NA	274 - 369	366 - 484	461 - 924	910 - 1715	
275	240	135	NA	329 - 443	440 - 582	555 - 1109	1093 - 2059	
367	320	180	NA	439 - 591	588 - 776	741 - 1480	1460 - 2748	
459	400	225	NA	549 - 740	735 - 971	927 - 1851	1826 - 3436	

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

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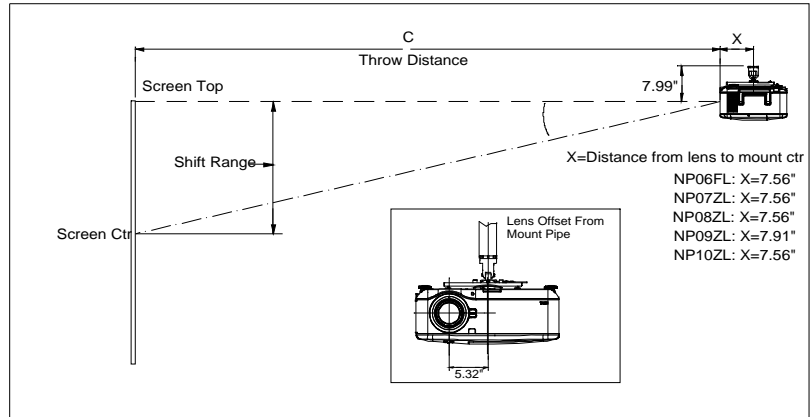
Projection Distance and Screen Size for Ceiling Mount

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 4x3 image, you must select 4x3 for each incoming signal in the OSM.

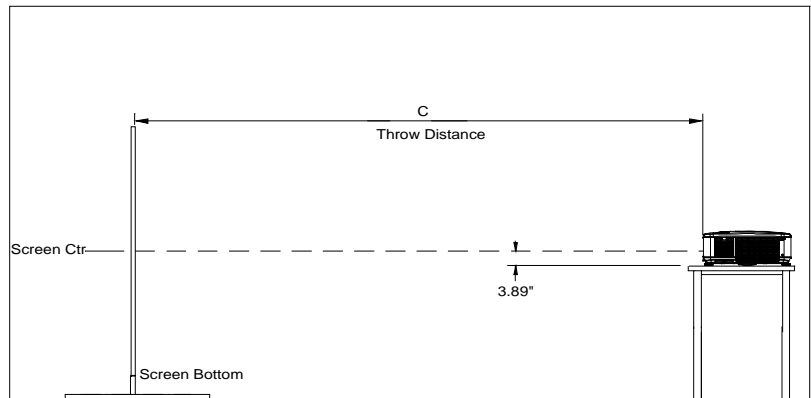
MENU>IMAGE OPTIONS>ASPECT RATIO

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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 4:3 screens

Screen Size (4:3)			Rear Lens	Zoom Lenses				
Diagonal	Width(W)	Height (H)	NP06FL	NP07ZL	NP08ZL	NP09ZL	NP10ZL	
inches	inches	inches	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	
40	32	24	N/A	42.2 - 57.5	56.6 - 75.4	70.4 - 144.3	141.1 - 270.0	
60	48	36	37.68	64.2 - 87.2	86.2 - 114.4	107.6 - 218.5	214.4 - 407.6	
67	53.6	40.2	42.26	71.9 - 97.6	96.5 - 128.0	120.6 - 244.5	240.1 - 455.8	
72	57.6	43.2	45.52	77.5 - 105.0	103.9 - 137.8	130.0 - 263.0	258.4 - 490.2	
84	67.2	50.4	53.37	90.7 - 122.8	121.6 - 161.2	152.3 - 307.6	302.3 - 572.8	
90	72	54	57.29	97.3 - 131.7	130.4 - 172.8	163.5 - 329.8	324.3 - 614.1	
100	80	60	63.83	108.4 - 146.5	145.2 - 192.3	182.1 - 366.9	361.0 - 683.0	
120	96	72	76.90	130.4 - 176.2	174.7 - 231.3	219.4 - 441.2	434.2 - 820.6	
150	120	90	96.51	163.5 - 220.7	218.9 - 289.7	275.2 - 552.5	544.2 - 1027.1	
180	144	108	116.11	196.6 - 265.2	263.2 - 348.2	331.1 - 663.8	654.1 - 1233.6	
210	168	126	NA	229.7 - 309.7	307.4 - 406.6	387.0 - 775.2	764.0 - 1440.1	
240	192	144	NA	262.8 - 354.2	351.7 - 465.0	442.8 - 886.5	873.9 - 1646.6	
270	216	162	NA	295.9 - 398.7	395.9 - 523.5	498.7 - 997.9	983.8 - 1853.1	
300	240	180	NA	329.0 - 443.1	440.2 - 581.9	554.6 - 1109.2	1093.8 - 2059.6	
400	320	240	NA	439.3 - 591.5	587.7 - 776.7	740.8 - 1480.3	1460.2 - 2747.9	

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

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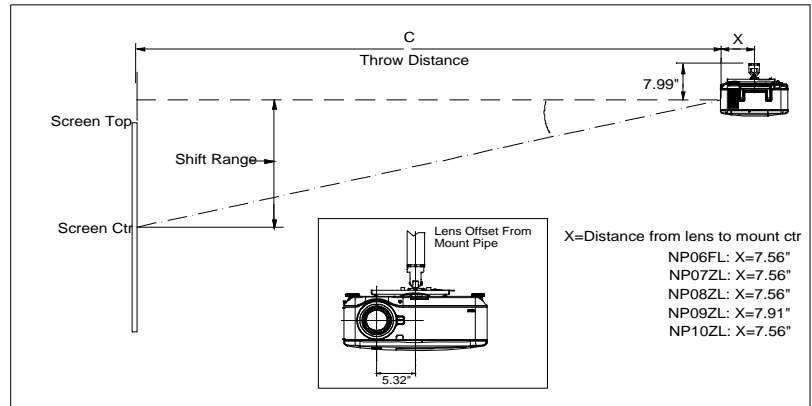
Projection Distance and Screen Size for Ceiling Mount

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 15x9 image, you must select 15x9 for each incoming signal in the OSM.

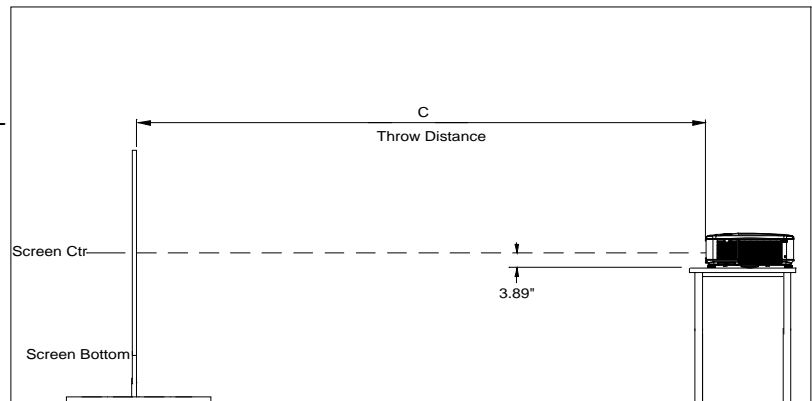
MENU>IMAGE OPTIONS>ASPECT RATIO

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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)			Image Size (15:9) on a (16:9) screen			Rear Lens	Zoom Lenses				
Diagonal	Width(W)	Height (H)	Diagonal	Width(W)	Height (H)	NP06FL	NP07ZL	NP08ZL	NP09ZL	NP10ZL	
inches	inches	inches	inches	inches	inches	0.77:1	1.33 - 1.79:1	1.78 - 2.35:1	2.22 - 4.43:1	4.43 - 8.30:1	
92	80	45	88	75	45	59.74	101.5 - 137.2	135.9 - 180.1	170.5 - 343.8	338.1 - 639.9	
100	87	49	95	81.7	49	65.19	110.6 - 149.6	148.2 - 196.4	186.0 - 374.7	368.6 - 697.3	
106	92	52	101	86.7	52	69.27	117.5 - 158.9	157.5 - 208.6	197.6 - 397.9	391.5 - 740.3	
110	96	54	105	90	54	72.00	122.1 - 165.0	163.6 - 216.7	205.4 - 413.3	406.8 - 769.0	
119	104	58.8	114	98	58.8	78.53	133.2 - 179.9	178.4 - 236.2	224.0 - 450.4	443.4 - 837.8	
123	107	60	117	100	60	80.17	135.9 - 183.6	182.0 - 241.0	228.7 - 459.7	452.6 - 855.0	
133	116	65	126	108.3	65	86.97	147.4 - 199.0	197.4 - 261.3	248.1 - 498.4	490.7 - 926.7	
135	118	66	128	110	66	88.34	149.7 - 202.1	200.5 - 265.4	251.9 - 506.1	498.4 - 941.1	
159	139	78	152	130	78	104.68	177.3 - 239.2	237.4 - 314.1	298.5 - 598.9	590.0 - 1113.2	
161	140	79	154	131.7	79	106.04	179.6 - 242.3	240.4 - 318.1	302.4 - 606.6	597.6 - 1127.5	
229	200	113	220	188.3	113	NA	257.7 - 347.4	344.9 - 456.1	434.3 - 869.5	857.1 - 1615.1	
275	240	135	263	225	135	NA	308.3 - 415.3	412.5 - 545.4	519.7 - 1039.6	1025.1 - 1930.5	
367	320	180	350	300	180	NA	411.7 - 554.4	550.8 - 728.0	694.3 - 1387.5	1368.6 - 2575.8	
459	400	225	438	375	225	NA	515.2 - 693.4	689.1 - 910.6	868.9 - 1735.5	1712.1 - 3221.1	

Note: For screen sizes not indicated on the projection tables, use the formulas on page 1. A native (15:9) image will not fill the screen horizontally when using a (16:9) screen.

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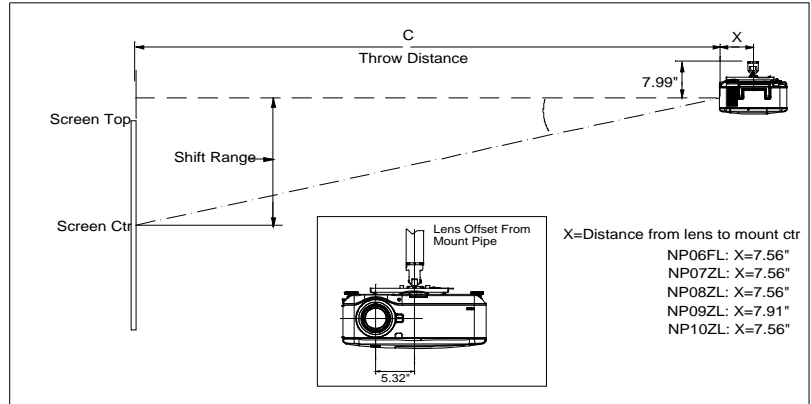
Projection Distance and Screen Size for Ceiling Mount

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 15x9 image, you must select 15x9 for each incoming signal in the OSM.

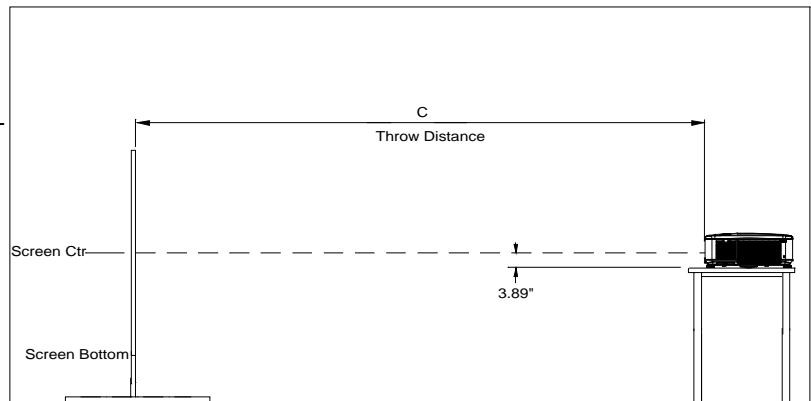
MENU>IMAGE OPTIONS>ASPECT RATIO

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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.



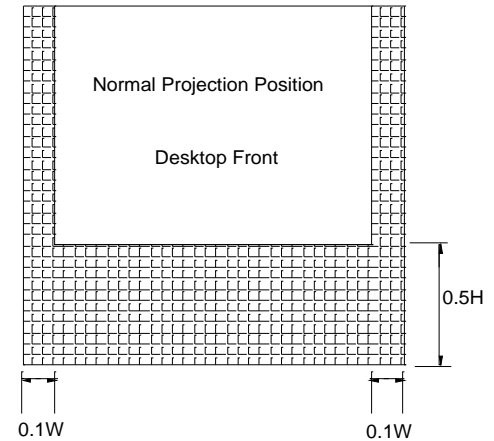
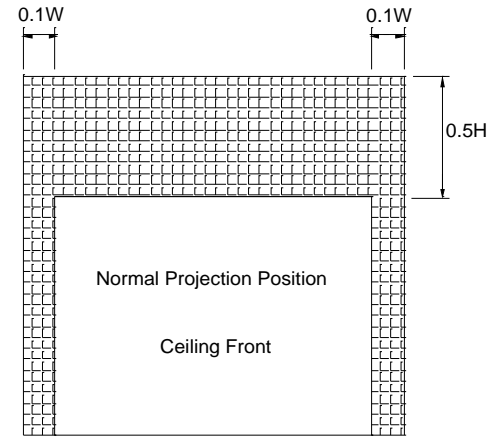
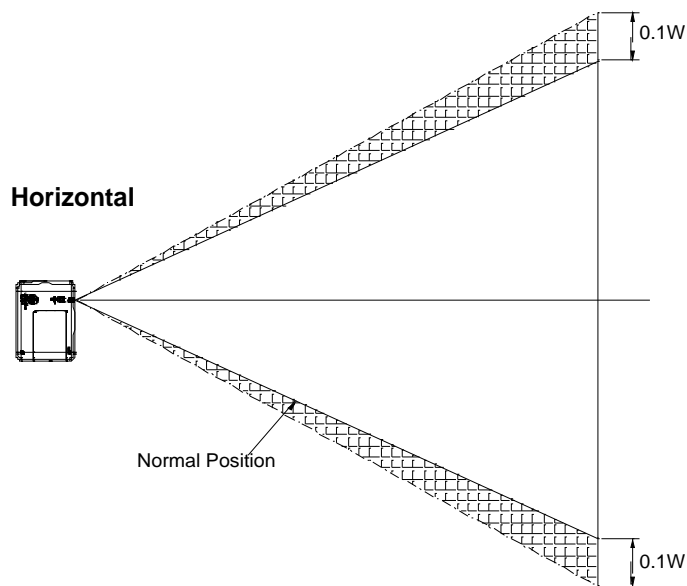
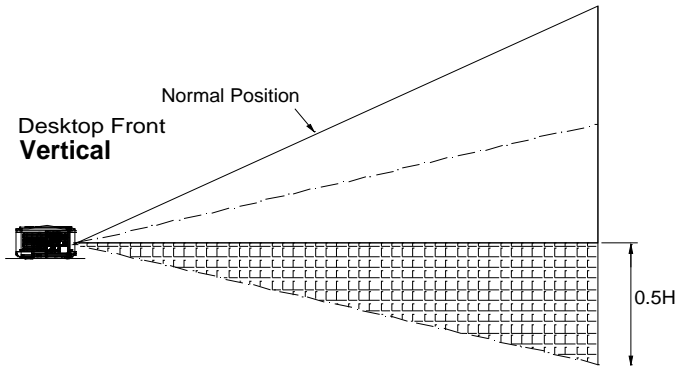
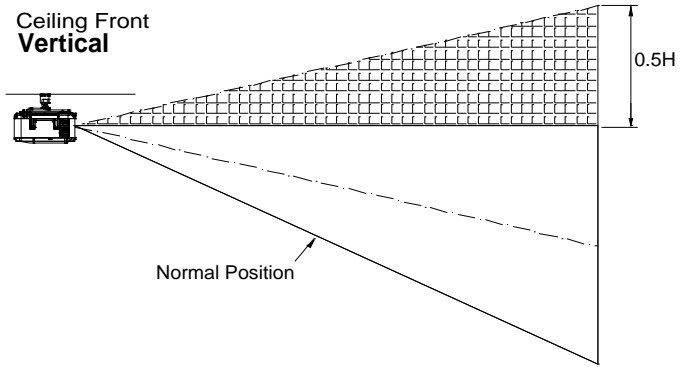
Distance Chart for popular 16:10 screens

Screen Size (16:10)			Image Size (15:9) on a (16:10) screen			Rear Lens	Zoom Lenses				
Diagonal	Width(W)	Height (H)	Diagonal	Width(W)	Height (H)	NP06FL	NP07ZL	NP08ZL	NP09ZL	NP10ZL	
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	
94	80	50	93	80	48	63.83	108.4 - 146.5	145.2 # 192.3	182.1 - 366.9	361.0 - 683.0	
113	96	60	112	96	57.6	76.90	130.4 - 176.2	174.7 # 231.3	219.4 - 441.2	434.2 - 820.6	
130	110	69	128	110	66	88.34	149.7 - 202.1	200.5 # 265.4	251.9 - 506.1	498.4 - 941.1	
164	139	87	162	139	83.4	112.03	189.7 - 255.9	254.0 # 336.0	319.5 - 640.6	631.2 - 1190.6	

Note: For screen sizes not indicated on the projection tables, use the formulas on page 1. A native (15:9) image will not fill the screen vertically when using a (16:10) screen.

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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

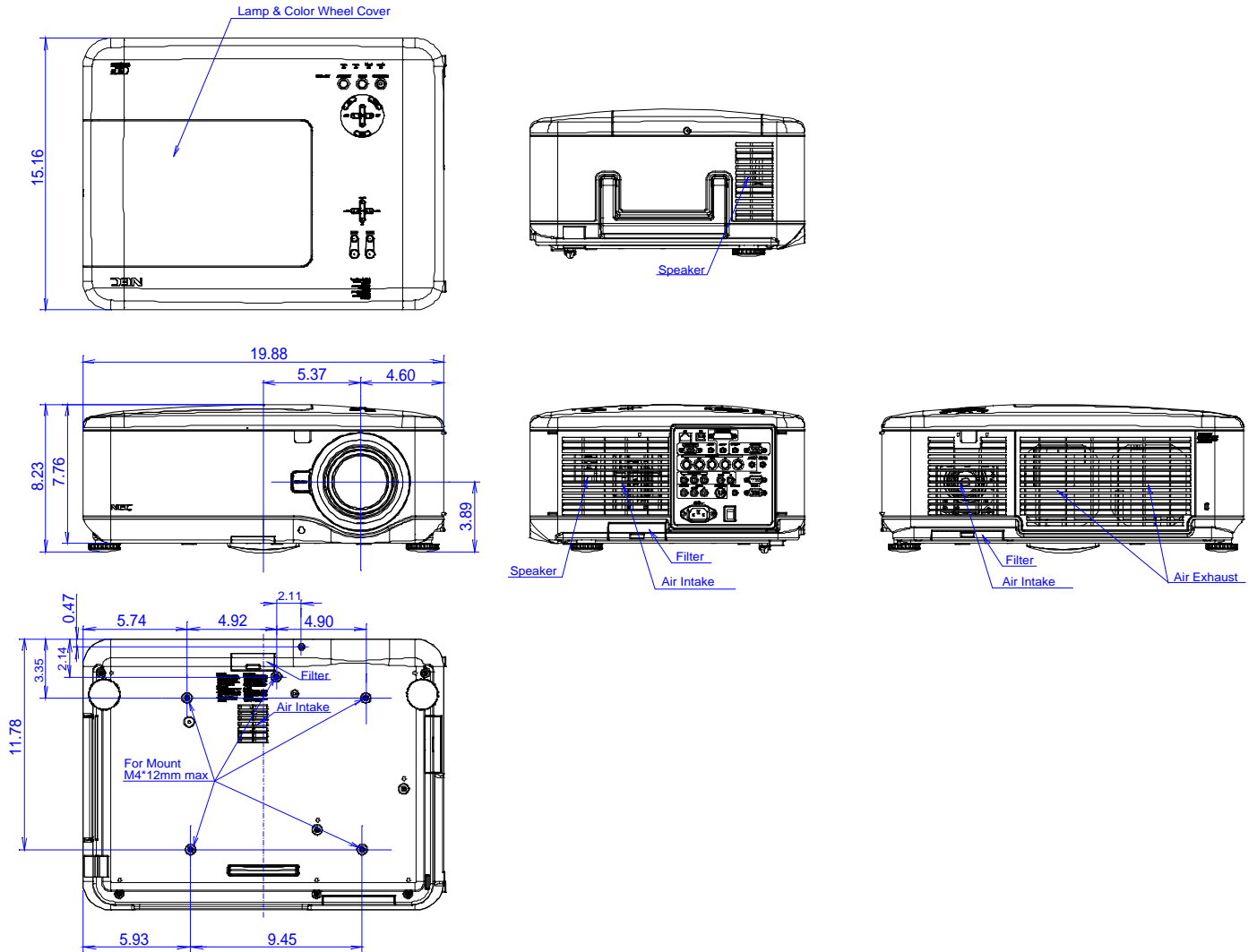
(W: width of projected image, H: height of projected image)

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Cabinet Dimensions

The following diagrams show the cabinet dimensions for the NP4001. Dimensions are in inches. For millimeters multiply by 25.4.



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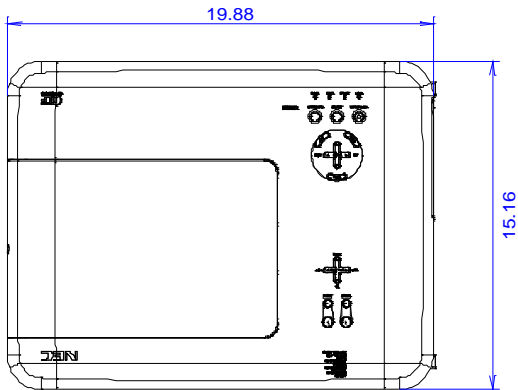
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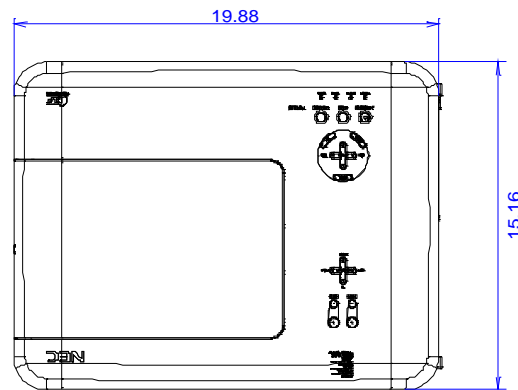
Lens Dimensions

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

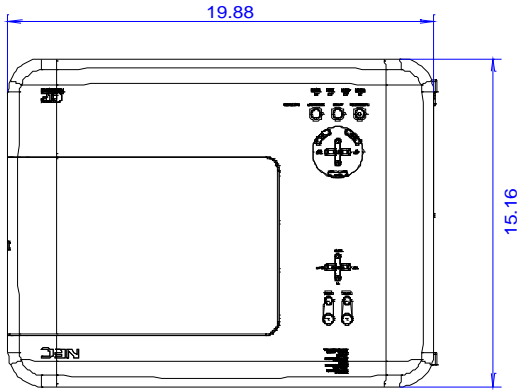
NP06FL



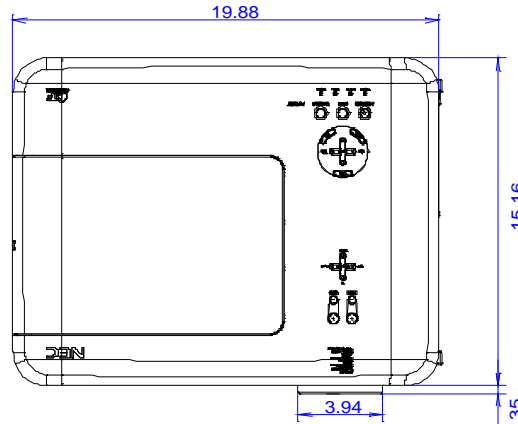
NP07ZL



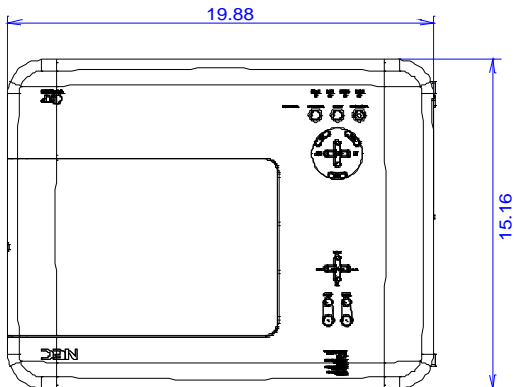
NP08ZL



NP09ZL



NP10ZL



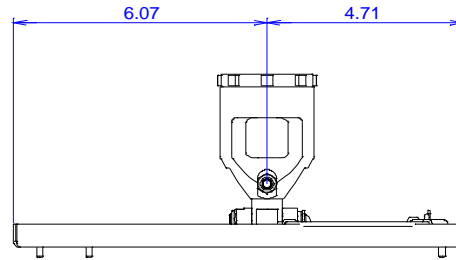
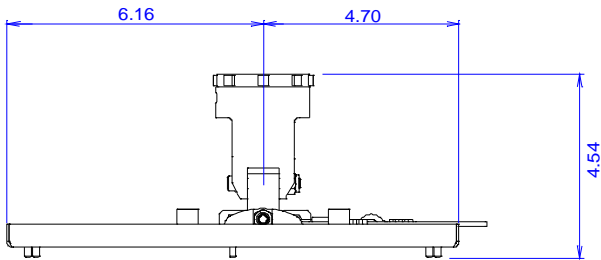
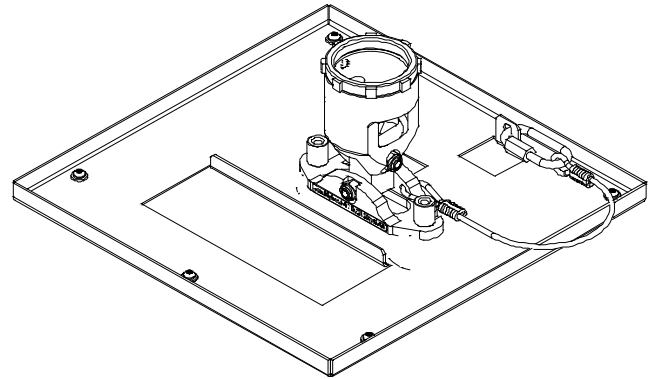
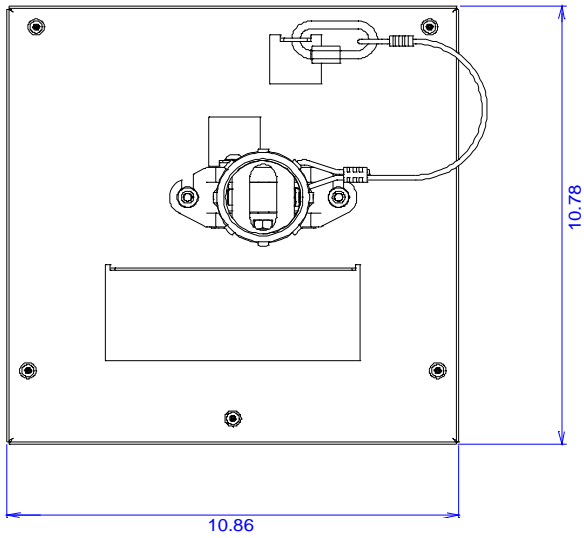
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Optional Ceiling Mount Dimensions (Model #: NP4000CM)

The following diagrams show ceiling mount dimensions for the NP4001. Dimensions are in inches. For millimeters multiply by 25.4.

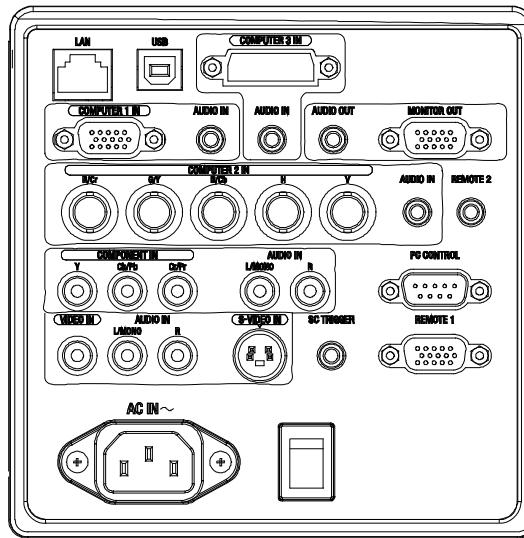


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Input Panel



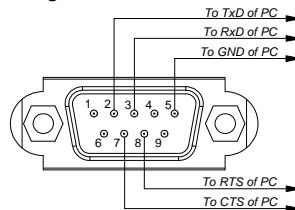
PC Control Codes

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 15:9	03H 10H 00H 00H 05H 18H 00H 00H 06H 00H 36H
ASPECT RATIO LETTERBOX	03H 10H 00H 00H 05H 18H 00H 00H 01H 00H 31H
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.