NP4001 Installation Guide

Desktop and Ceiling Mount

v 1.0

Contents

Product Description

Type:	1 chip DLP Projector 0.65 DMD	Dimensions:	19.88" (W) x 15.16" (H) x 8.23" (D)
		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 Screen Sizes: 50"-200"	Focal Length: 11.4mm F/#:2.0	**NP09ZL:**	Throw Ratio: ~2.22 - 4.43:1 Screen Sizes: 40" - 500"	Focal Length: 32.0 – 63.0mm F/#:2.1 – 2.9
NP07ZL:	Throw Ratio: ~1.33 - 1.79:1 Screen Sizes: 40" - 500"	Focal Length: 19.3 - 25.8mm F/#:1.8 – 2.3	**NP10ZL:**	Throw Ratio: 4.43 -8.3:1 Screen Sizes: 40" - 500"	Focal Length: 63.5 – 117.4mm F/#:2.2 – 3.1
NP08ZL:	Throw Ratio: ~1.78 - 2.35:1 Screen Sizes: 40" – 500"	Focal Length: 26.0 - 34.0mm 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** = 0.817W – 1.535
NP07ZL: **C**(Wide) = 1.379W – 1.969 --------- **C**(Tele) = 1.854W – 1.811
NP08ZL: **C**(Wide) = 1.844W – 2.362 --------- **C**(Tele) = 2.435W – 2.480
NP09ZL: **C**(Wide) = 2.328W – 4.134 --------- **C**(Tele) = 4.639W – 4.173
NP10ZL: **C**(Wide) = 4.580W – 5.433 --------- **C**(Tele) = 8.604W – 5.354

15:9 Screen Formulas:
W = H x 15/9
H = W x 9/15
Diagonal = W x 17.493/15

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

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

4:3 Screen Formulas:
W = H x 4/3
H = W x 3/4
Screen Diagonal = W x 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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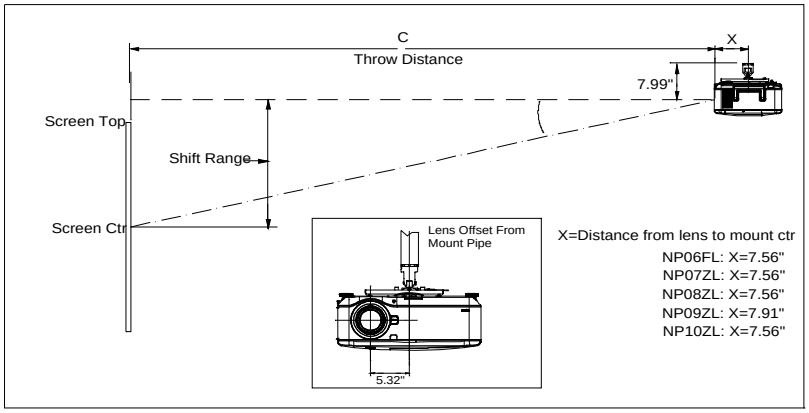
Projection Distance and Screen Size for Ceiling Mount

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.

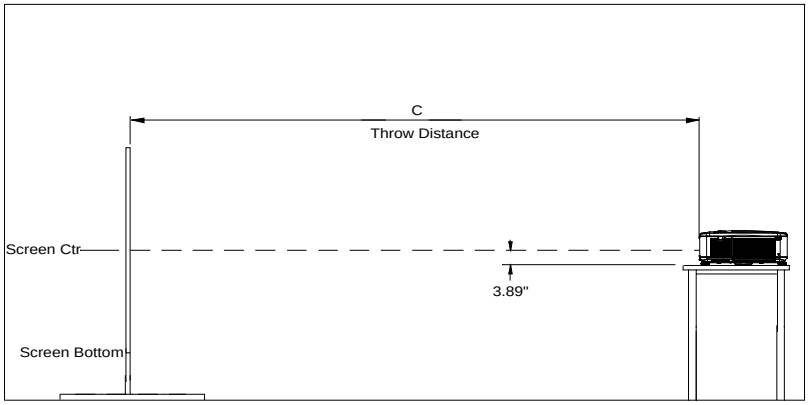
Note: ***To achieve a 16x9 image, you must select 16x9 for each incoming signal in the OSM.***
MENU>IMAGE OPTIONS>ASPECT RATIO

Ceiling Mount Installation



Desktop Installation

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	63.83	108.4 - 146.5	145.2 - 192.3	182.1 - 366.9	361.0 - 683.0
100	87	49	69.54	118.0 - 159.5	158.1 - 209.4	198.4 - 399.4	393.0 - 743.2
106	92	52	73.63	124.9 - 168.8	167.3 - 221.5	210.0 - 422.6	415.9 - 786.2
110	96	54	76.90	130.4 - 176.2	174.7 - 231.3	219.4 - 441.2	434.2 - 820.6
119	104	58.8	83.43	141.4 - 191.0	189.4 - 250.8	238.0 - 478.3	470.9 - 889.5
123	107	60	85.88	145.6 - 196.6	194.9 - 258.1	245.0 - 492.2	484.6 - 915.3
133	116	65	93.24	158.0 - 213.3	211.5 - 280.0	265.9 - 534.0	525.8 - 992.7
135	118	66	94.87	160.8 - 217.0	215.2 - 284.9	270.6 - 543.2	535.0 - 1009.9
159	139	78	112.03	189.7 - 255.9	254.0 - 336.0	319.5 - 640.6	631.2 - 1190.6
161	140	79	112.85	191.1 - 257.7	255.8 - 338.4	321.8 - 645.3	635.8 - 1199.2
229	200	113	NA	273.8 - 369.0	366.4 - 484.5	461.5 - 923.6	910.6 - 1715.4
275	240	135	NA	329.0 - 443.1	440.2 - 581.9	554.6 - 1109.2	1093.8 - 2059.6
367	320	180	NA	439.3 - 591.5	587.7 - 776.7	740.8 - 1480.3	1460.2 - 2747.9
459	400	225	NA	549.6 - 739.8	735.2 - 971.5	927.1 - 1851.4	1826.6 - 3436.2

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

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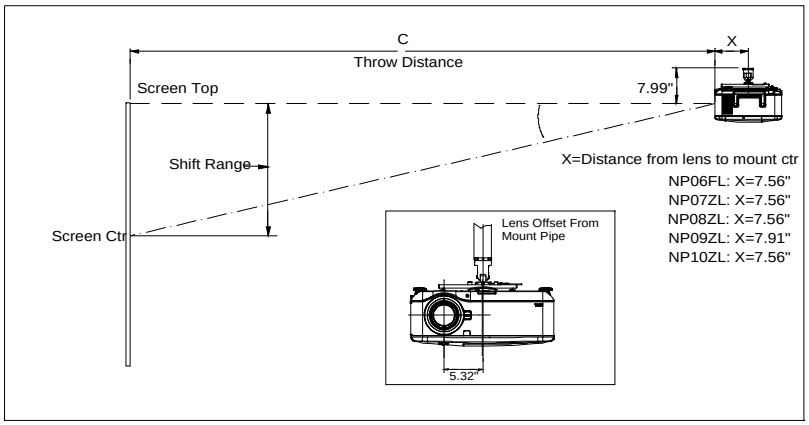
Projection Distance and Screen Size for Ceiling Mount

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.

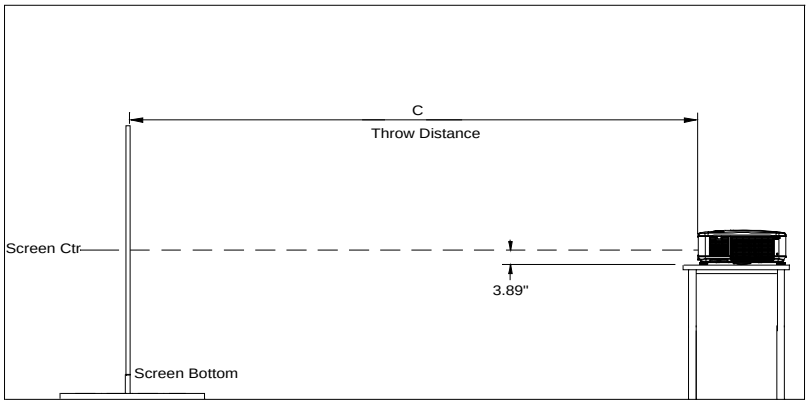
***Note:* To achieve a 4x3 image, you must select 4x3 for each incoming signal in the OSM.**
MENU>IMAGE OPTIONS>ASPECT RATIO

Ceiling Mount Installation



Desktop Installation

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			
			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
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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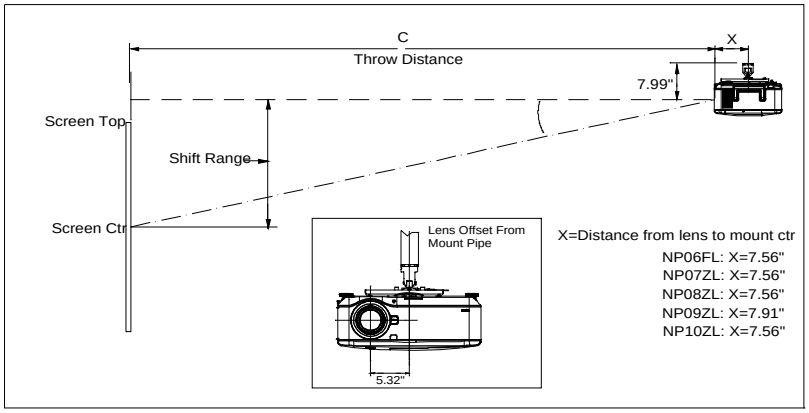
Projection Distance and Screen Size for Ceiling Mount

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.

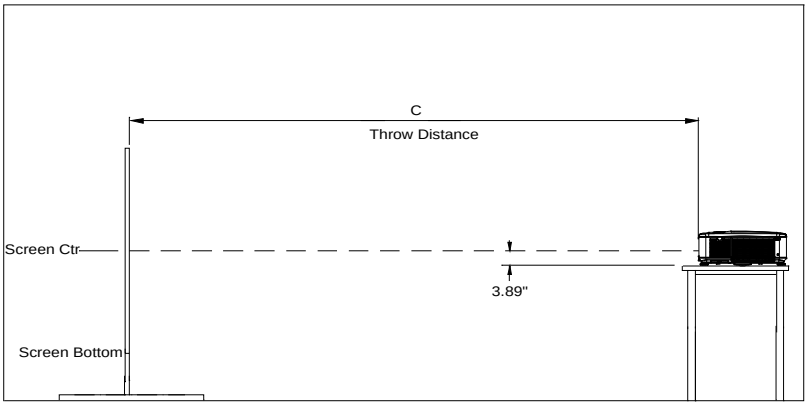
Note: ***To achieve a 15x9 image, you must select 15x9 for each incoming signal in the OSM.***
MENU>IMAGE OPTIONS>ASPECT RATIO

Ceiling Mount Installation



Desktop Installation

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			
						NP06FL	NP07ZL	NP08ZL	NP09ZL	NP10ZL
Diagonal	Width(W)	Height (H)	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	inches	inches	inches
92	80	45	87	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	262	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	437	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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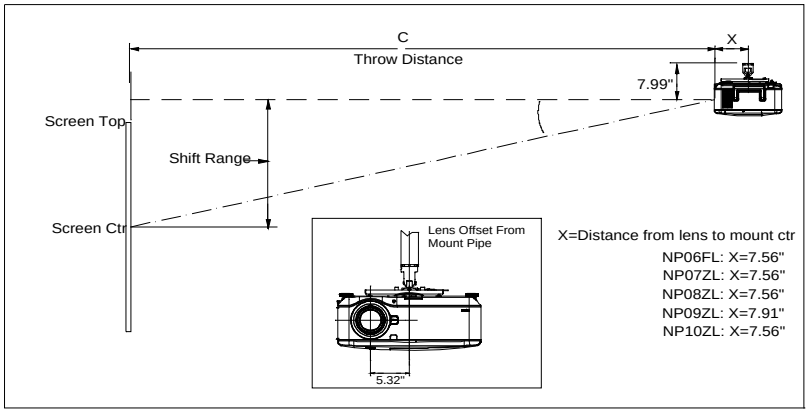
Projection Distance and Screen Size for Ceiling Mount

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.

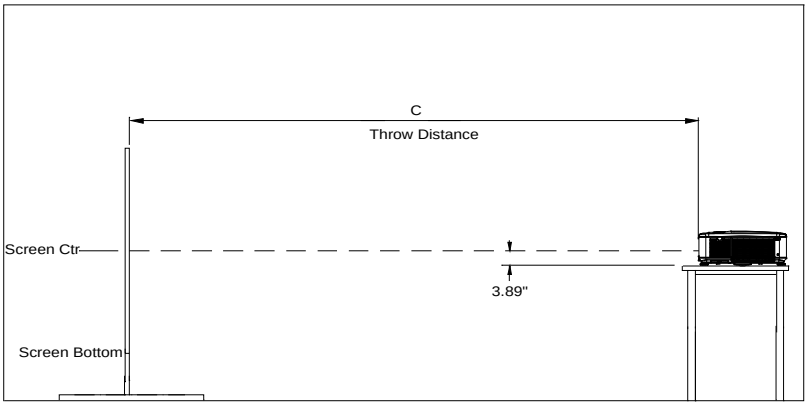
Note: ***To achieve a 15x9 image, you must select 15x9 for each incoming signal in the OSM.***
MENU>IMAGE OPTIONS>ASPECT RATIO

Ceiling Mount Installation



Desktop Installation

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

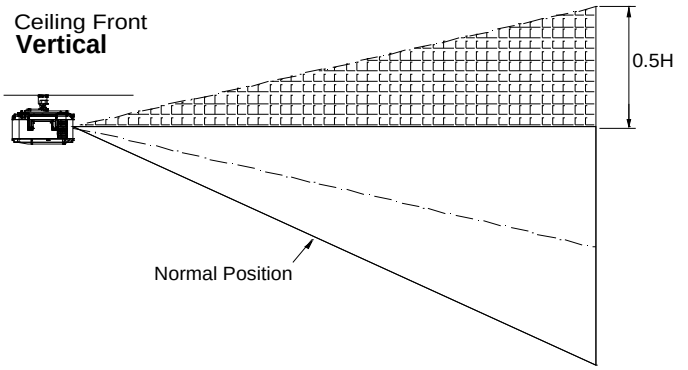


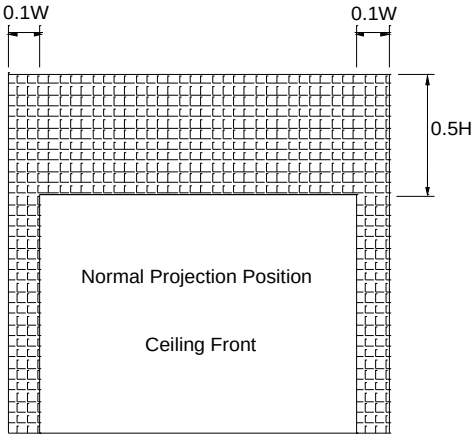
Distance Chart for popular 16:10 screens

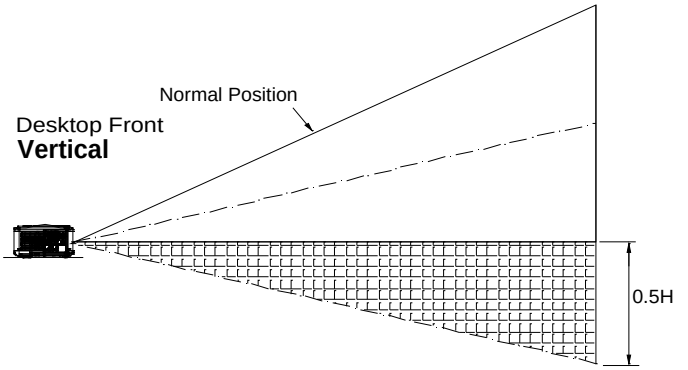
Screen Size (16:10)			Image Size (15:9) on a (16:10) screen			Rear Lens	Zoom Lenses			
						NP06FL	NP07ZL	NP08ZL	NP09ZL	NP10ZL
Diagonal	Width(W)	Height (H)	Diagonal	Width(W)	Height (H)	0.77:1	1.33 - 1.79:1	1.78 - 2.35:1	2.22 - 4.43:1	4.43 - 8.30:1
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches
94	80	50	91	80	48	63.83	108.4 - 146.5	145.2 # 192.3	182.1 - 366.9	361.0 - 683.0
113	96	60	110	96	57.6	76.90	130.4 - 176.2	174.7 # 231.3	219.4 - 441.2	434.2 - 820.6
130	110	69	126	110	66	88.34	149.7 - 202.1	200.5 # 265.4	251.9 - 506.1	498.4 - 941.1
164	139	87	159	139	83.4	112.03	189.7 - 255.9	254.0 # 336.0	319.5 - 640.6	631.2 - 1190.6

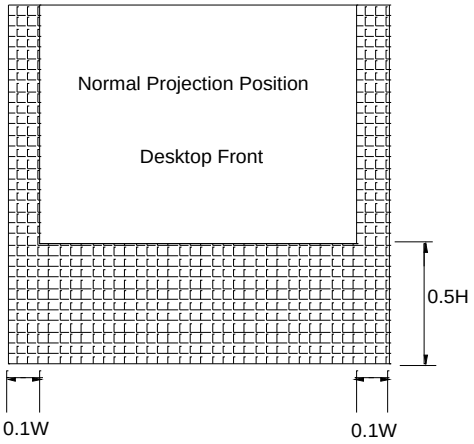
Note: *For screen sizes not indicated on the projection tables, use the formulas on page 1.*
A native (15:9) image will not fill the screen vertically when using a (16:10) screen.

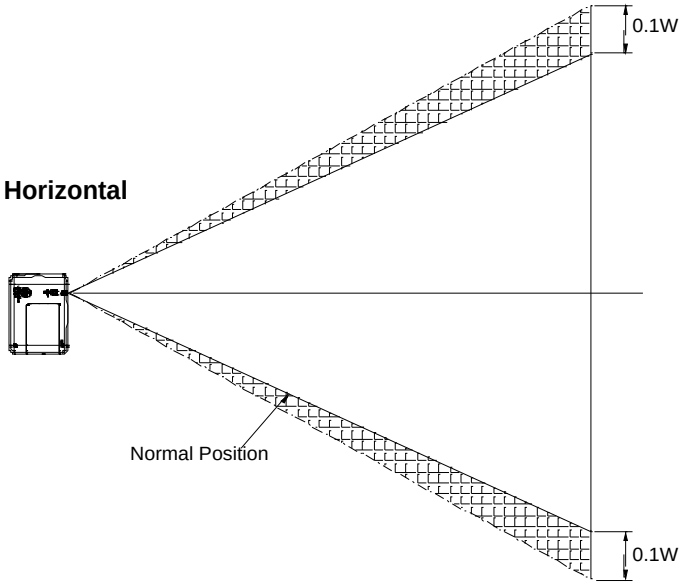
Lens Shift Adjustable Range











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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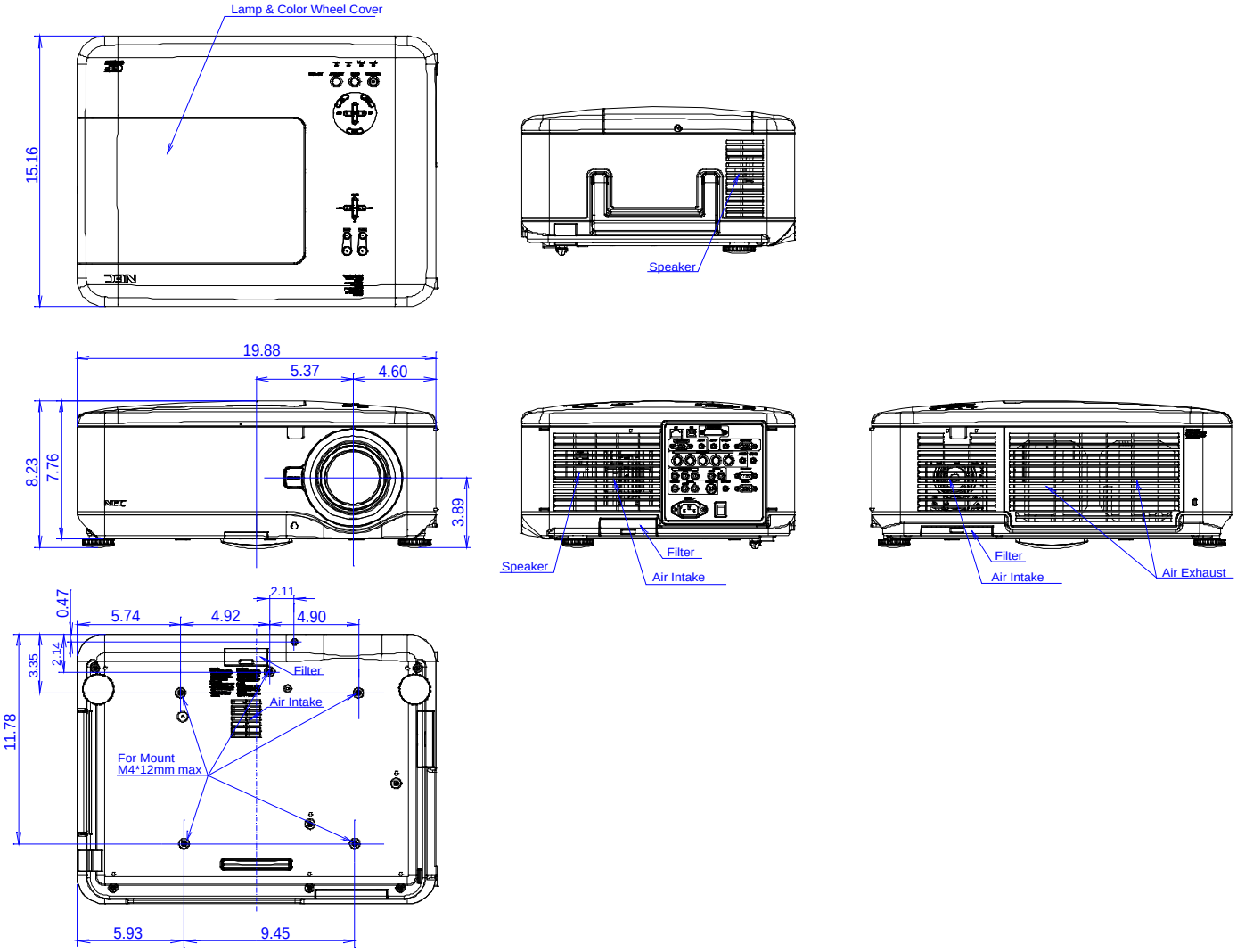
Cabinet Dimensions

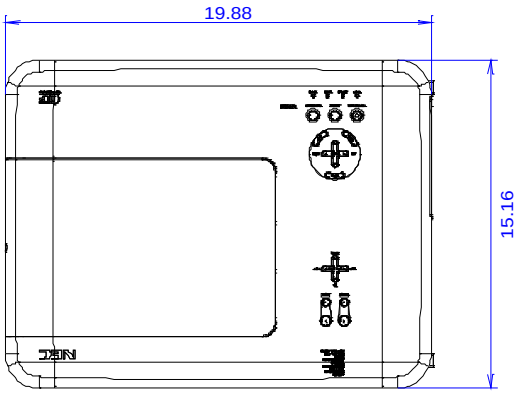
The following diagrams show the cabinet dimensions for the NP4001.
Dimensions are in inches. For millimeters multiply by 25.4.



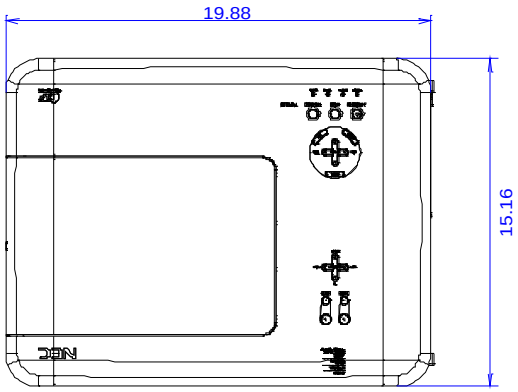
Lens Dimensions

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

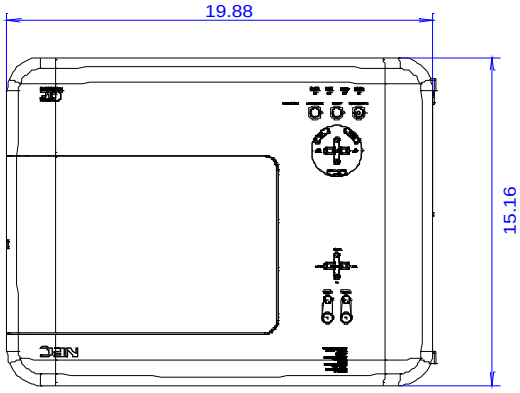
NP06FL



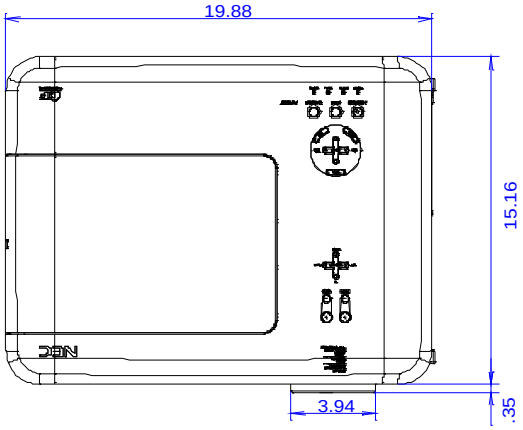
NP07ZL



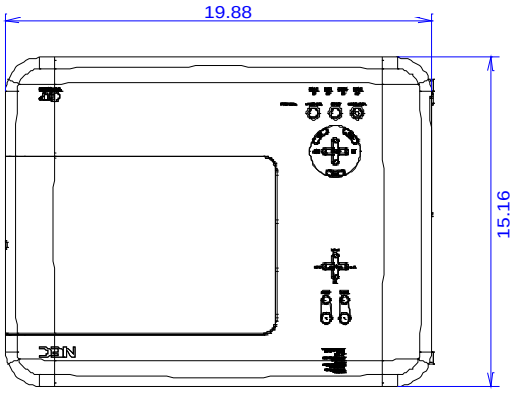
NP08ZL



NP09ZL

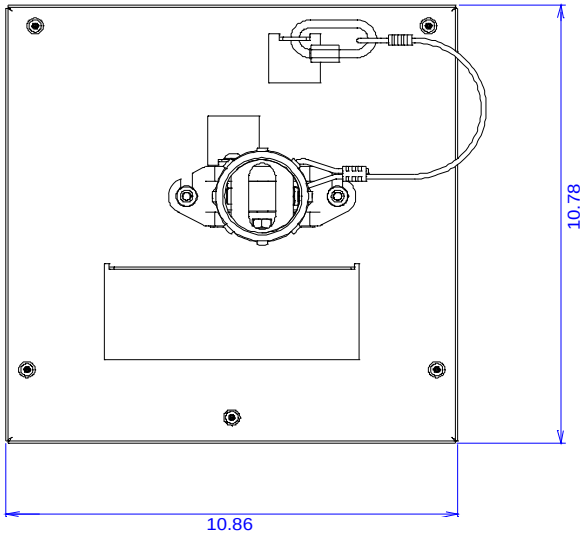


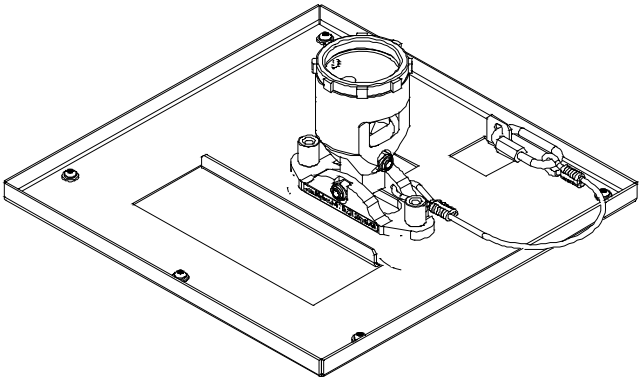
NP10ZL

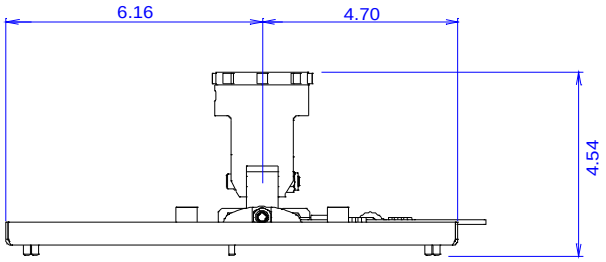


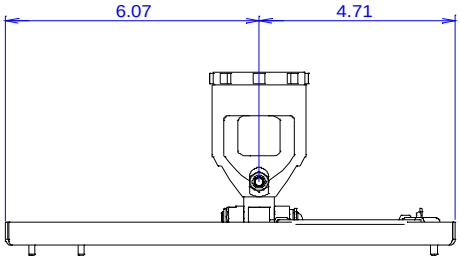
Optional Ceiling Mount Dimensions (Model #: NP4000CM)

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









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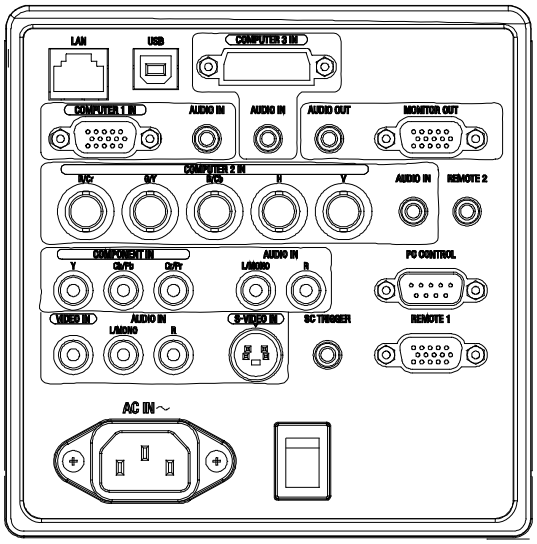
Input Panel



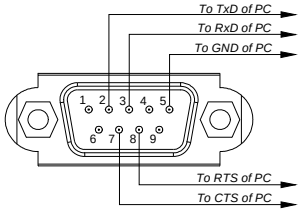
PC Control Codes

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.