NP4000 Installation Guide

Desktop and Ceiling Mount

v 1.1

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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)
		Weight:	35.7 lbs
Resolution:	1024 x 768 (4:3) / 1024 x 576 (16:9)	Brightness:	NP4000 – 5200 ANSI Lumens
Powered:	Lens Shift, Horizontal & Vertical /Zoom/ Focus	BTU's:	2027 BTU/hour
Fan Noise:	35 dB / 33dB @ 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: 48.8 - 77.6mm 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** = 0.808W – 1.644		
NP07ZL:	**C**(Wide) = 1.361W – 1.833	---------	**C**(Tele) = 1.831W – 1.800
NP08ZL:	**C**(Wide) = 1.823W – 2.524	---------	**C**(Tele) = 2.403W – 2.447
NP09ZL:	**C**(Wide) = 2.298W – 4.133	---------	**C**(Tele) = 4.579W – 4.226
NP10ZL:	**C**(Wide) = 4.516W – 5.296	---------	**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

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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			
			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	24.21	NA	NA	NA	NA
60	48	36	37.14	63.50 - 86.1	85.0 - 112.9	106.2 - 215.6	211.5 - 403.2
67	53.6	40.2	41.66	71.12 - 96.3	95.2 - 126.4	119.0 - 241.2	236.8 - 450.8
72	57.6	43.2	44.90	76.56 - 103.7	102.5 - 136.0	128.2 - 259.5	254.8 - 484.9
84	67.2	50.4	52.65	89.63 - 121.2	120.0 - 159.0	150.3 - 303.5	298.2 - 566.6
90	72	54	56.53	96.16 - 130.0	128.7 - 170.6	161.3 - 325.5	319.9 - 607.5
100	80	60	63.00	107.05 - 144.7	143.3 - 189.8	179.7 - 362.1	356.0 - 675.6
120	96	72	75.92	128.82 - 174.0	172.5 - 228.2	216.5 - 435.4	428.2 - 811.8
150	120	90	95.32	161.49 - 217.9	216.2 - 285.9	271.6 - 545.3	536.6 - 1016.2
180	144	108	114.71	194.15 - 261.9	260.0 - 343.6	326.8 - 655.2	645.0 - 1220.5
210	168	126	NA	226.82 - 305.8	303.7 - 401.3	381.9 - 765.0	753.4 - 1424.8
240	192	144	NA	259.48 - 349.8	347.5 - 458.9	437.1 - 874.9	861.8 - 1629.2
270	216	162	NA	292.14 - 393.7	391.2 - 516.6	492.2 - 984.8	970.2 - 1833.5
300	240	180	NA	324.81 - 437.6	435.0 - 574.3	547.4 - 1094.7	1078.5 - 2037.8
400	320	240	NA	433.69 - 584.1	580.8 - 766.5	731.2 - 1461.1	1439.8 - 2719.0
500	400	300	NA	542.57 - 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

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	63.00	107.0 - 144.7	143.3 - 189.8	179.7 - 362.1	356.0 - 675.6
100	87	49	68.65	116.6 - 157.5	156.1 - 206.6	195.8 - 394.1	387.6 - 735.2
106	92	52	72.69	123.4 - 166.7	165.2 - 218.6	207.3 - 417.0	410.2 - 777.8
110	96	54	75.92	128.8 - 174.0	172.5 - 228.2	216.5 - 435.4	428.2 - 811.8
119	104	58.8	82.39	139.7 - 188.6	187.1 - 247.5	234.9 - 472.0	464.4 - 879.9
123	107	60	84.81	143.8 - 194.1	192.5 - 254.7	241.8 - 485.7	477.9 - 905.5
133	116	65	92.08	156.0 - 210.6	208.9 - 276.3	262.4 - 526.9	518.6 - 982.1
135	118	66	93.70	158.8 - 214.3	212.6 - 281.1	267.0 - 536.1	527.6 - 999.1
159	139	78	110.67	187.3 - 252.7	250.9 - 331.6	315.3 - 632.3	622.4 - 1177.9
161	140	79	111.48	188.7 - 254.5	252.7 - 334.0	317.6 - 636.8	626.9 - 1186.4
229	200	113	NA	270.4 - 364.4	362.1 - 478.2	455.5 - 911.6	897.9 - 1697.3
275	240	135	NA	324.8 - 437.6	435.0 - 574.3	547.4 - 1094.7	1078.5 - 2037.8
367	320	180	NA	433.7 - 584.1	580.8 - 766.5	731.2 - 1461.1	1439.8 - 2719.0
459	400	225	NA	542.6 - 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.*

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)

Cabinet Dimensions

The following diagrams show the cabinet dimensions for the NP4000.
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 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
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.