

PA500U/PA500X/PA550W/PA600X Installation Guide

Desktop and Ceiling Mount

Rev 1.0

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Product Description

Type:	s3 panel LCD projector, 0.79 p-Si TFT w/MLA (PA500X/PA600X) 0.75 p-Si TFT w/MLA (PA550W) 0.76 p-Si TFT w/MLA (PA500U)	Dimensions: 19.7"(W) x 6.5"(H) x 14.4"(D)
Resolution:	1024 x 768 (4:3) 1024 x 576 (16:9) 1920 x 1200 (16:10)	Weight: 17.0 lbs
Fan Noise:	PA500X 38 dB / 31dB @ 1 meter PA500U 38 dB / 32dB @ 1 meter PA550W 38 dB / 31dB @ 1 meter PA600X 38 dB / 31dB @ 1 meter	Brightness: PA500X – 5000 Lumens PA500U – 5000 Lumens PA550W – 5500 Lumens PA600X – 6000 Lumens
Power Consumption:	PA500X/PA550W 464W (max) PA600X 464W (max) PA500U 477W (max)	BTU's: 1583 BTU/hour 1583 BTU/hour 1628 BTU/hour

Network Ready, integrated wired and wireless adapter

Manual: Lens Shift, Horizontal & Vertical /Zoom/ Focus

Lens Specifications

NP11FL: Throw Ratio: ~ 0.8:1 Focal Length: 13.2mm	NP14ZL: Throw Ratio: 2.97 -4.79:1 Focal Length: 48.5 - 77.6mm
Screen Sizes: 60"-150" F#:2.3	Screen Sizes: 60" - 200" F#:2.2
NP12ZL: Throw Ratio: 1.19 - 1.56:1 Focal Length: 19.4 – 25.3mm	NP15ZL: Throw Ratio: 4.70 - 7.02:1 Focal Length: 76.6 - 116.5mm
Screen Sizes: 40" - 200" F#:2.2	Screen Sizes: 80" - 200" F#:2.2
NP13ZL: Throw Ratio: 1.50 - 3.02:1 Focal Length: 24.4 – 48.6mm	
Screen Sizes: 40" - 200" F#:1.7	

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.

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..
- Distances are in inches, for millimeters multiply by 25.4.
- Distances may vary ±5%.

Formulas: 4:3 Aspect Ratio (PA500X/PA600X—XGA)

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 = 0.827W – 1.374	
NP12ZL: C(Wide) = 1.214W – 1.794 ----- C(Tele) = 1.578W – 1.794	
NP13ZL: C(Wide) = 1.524W – 1.974 ----- C(Tele) = 3.043W – 1.972	
NP14ZL: C(Wide) = 3.034W – 4.844 ----- C(Tele) = 4.855W – 4.844	
NP15ZL: C(Wide) = 4.797W – 7.630 ----- C(Tele) = 7.291W – 7.630	

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

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

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Distance Chart for popular 4:3 screens

Screen Size (4:3)			Rear Lens	Zoom Lenses					
Diagonal	Width(W)	Height (H)	NP11FL	NP12ZL	NP13ZL	NP14ZA		NP15ZL	
inches	inches	inches	0.8:1	1.19 - 1.56:1	1.50 - 3.02:1	2.97 -4.79:1		4.70 - 7.20:1	
40	32	24	25.09	37.05 - 48.7	46.8 - 95.40	92.2	150.5	NA	
60	48	36	38.32	56.48 - 74.0	71.2 - 144.09	140.8	228.2	222.5 - 342.3	
67	53.6	40.2	42.95	63.28 - 82.8	79.7 - 161.13	157.8	255.4	249.4 - 383.2	
72	57.6	43.2	46.26	68.13 - 89.1	85.8 - 173.30	169.9	274.8	268.5 - 412.3	
84	67.2	50.4	54.20	79.79 - 104.2	100.4 - 202.52	199.0	321.4	314.6 - 482.3	
90	72	54	58.17	85.61 - 111.8	107.8 - 217.12	213.6	344.7	337.6 - 517.3	
100	80	60	64.79	95.33 - 124.4	119.9 - 241.47	237.9	383.6	376.0 - 575.7	
120	96	72	78.02	114.75 - 149.7	144.3 - 290.16	286.4	461.2	452.7 - 692.3	
150	120	90	97.87	143.89 - 187.6	180.9 - 363.19	359.2	577.8	567.9 - 867.3	
180	144	108	NA	173.02 - 225.4	217.5 - 436.22	432.1	694.3	683.0 - 1042.3	
210	168	126	NA	202.16 - 263.3	254.1 - 509.25	504.9	810.8	798.1 - 1217.3	
240	192	144	NA	231.29 - 301.2	290.6 - 582.28	577.7	927.3	913.3 - 1392.2	
270	216	162	NA	260.43 - 339.1	327.2 - 655.32	650.5	1043.8	1028.4 - 1567.2	
300	240	180	NA	289.57 - 376.9	363.8 - 728.35	723.3	1160.4	1143.5 - 1742.2	
400	320	240	NA	386.69 - 503.2	485.7 - 971.79	966.0	1548.8	1527.3 - 2325.5	
500	400	300	NA	483.81 - 629.4	607.6 - 1215.23	1208.8	1937.2	1911.0 - 2908.8	

Formulas: 16:10 Aspect Ratio (PA550W—WXGA)

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 = 0.819W – 1.375
- NP12ZL: C(Wide) = 1.203W – 1.794 ----- C(Tele) = 1.564W – 1.794
- NP13ZL: C(Wide) = 1.510W – 1.974 ----- C(Tele) = 3.014W – 1.972
- NP14ZL: C(Wide) = 3.005W – 4.844 ----- C(Tele) = 4.808W – 4.844
- NP15ZL: C(Wide) = 4.751W – 7.630 ----- C(Tele) = 7.221W – 7.630

Definitions:

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

16:10 Screen Formulas

- W = H x 16/10
- H = W x 10/16
- Screen Diagonal = W x 18.868/16

Distance Chart for popular 16:10 Screens (WXGA)

Screen Size (16:10)			Rear Lens	Zoom Lenses					
Diagonal	Width(W)	Height (H)	NP11FL	NP12ZL	NP13ZL	NP14ZA		NP15ZL	
inches	inches	inches	0.8:1	1.19 - 1.56:1	1.50 - 3.02:1	2.97 -4.79:1		4.70 - 7.20:1	
85	72	45	57.61	84.8 - 110.8	106.7 - 215.0	N/A	N/A	N/A	N/A
92	78	49	62.53	92.0 - 120.2	115.8 - 233.1	229.5	370.2	362.9	555.6
98	83	52	66.62	98.1 - 128.0	123.4 - 248.2	244.6	394.2	386.7	591.7
102	86	54	69.08	101.7 - 132.7	127.9 - 257.2	253.6	408.6	401.0	613.4
111	94	59	75.63	111.3 - 145.2	140.0 - 281.3	277.6	447.1	439.0	671.1
113	96	60	77.27	113.7 - 148.4	143.0 - 287.4	283.6	456.7	448.5	685.6
123	104	65	83.82	123.3 - 160.9	155.1 - 311.5	307.7	495.2	486.5	743.4
125	106	66	85.46	125.7 - 164.0	158.1 - 317.5	313.7	504.8	496.0	757.8
147	125	78	101.02	148.6 - 193.7	186.8 - 374.8	370.8	596.2	586.2	895.0
149	126	79	NA	149.8 - 195.3	188.3 - 377.8	373.8	601.0	591.0	902.2
213	181	113	NA	215.9 - 281.3	271.3 - 543.6	539.1	865.4	852.3	1299.4
255	216	135	NA	258.1 - 336.0	324.2 - 649.1	644.2	1033.7	1018.6	1552.1
340	288	180	NA	344.7 - 448.6	432.9 - 866.1	860.6	1379.9	1360.7	2072.0
425	360	225	NA	431.3 - 561.2	541.6 - 1083.1	1077.0	1726.0	1702.7	2591.9

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Formulas: 16:10 Aspect Ratio (PA500U—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	
NP12ZL:	C(Wide) = 1.185W – 1.794	C(Tele) = 1.541W – 1.794
NP13ZL:	C(Wide) = 1.488W – 1.974	C(Tele) = 2.970W – 1.972
NP14ZL:	C(Wide) = 2.961W – 4.844	C(Tele) = 4.737W – 4.844
NP15ZL:	C(Wide) = 4.681W – 7.630	C(Tele) = 7.115W – 7.630

Definitions:

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

16:10 Screen Formulas

W = H x 16/10
H = W x 10/16
Screen Diagonal = W x 18.868/16

Distance Chart for popular 16:10 Screens (WUXGA)

Screen Size (16:10)			Rear Lens	Zoom Lenses					
			NP11FL	NP12ZL	NP13ZL	NP14ZA	NP15ZL		
Diagonal	Width(W)	Height (H)	0.8:1	1.19 - 1.56:1	1.50 - 3.02:1	2.97 -4.79:1	4.70 - 7.20:1		
inches	inches	inches	inches	inches	inches	inches	inches		
85	72	45	56.75	83.5 - 109.2	105.2 - 211.9	N/A	N/A	N/A	N/A
92	78	49	61.59	90.6 - 118.4	114.1 - 229.7	226.1 - 364.6	357.5	555.6	
98	83	52	65.63	96.6 - 126.1	121.5 - 244.5	240.9 - 388.3	380.9	591.7	
102	86	54	68.05	100.1 - 130.7	126.0 - 253.4	249.8 - 402.5	394.9	613.4	
111	94	59	74.50	109.6 - 143.1	137.9 - 277.2	273.5 - 440.4	432.4	671.1	
113	96	60	76.12	112.0 - 146.1	140.9 - 283.1	279.4 - 449.9	441.7	685.6	
123	104	65	82.57	121.4 - 158.5	152.8 - 306.9	303.1 - 487.8	479.2	743.4	
125	106	66	84.19	123.8 - 161.6	155.8 - 312.8	309.0 - 497.3	488.6	757.8	
147	125	78	99.52	146.3 - 190.8	184.0 - 369.3	365.3 - 587.3	577.5	895.0	
149	126	79	NA	147.5 - 192.4	185.5 - 372.2	368.2 - 592.0	582.2	902.2	
213	181	113	NA	212.7 - 277.1	267.4 - 535.6	531.1 - 852.6	839.6	1299.4	
255	216	135	NA	254.2 - 331.1	319.4 - 639.5	634.7 - 1018.3	1003.5	1552.1	
340	288	180	NA	339.5 - 442.0	426.6 - 853.4	847.9 - 1359.4	1340.5	2072.0	
425	360	225	NA	424.8 - 553.0	533.7 - 1067.2	1061.1 - 1700.5	1677.5	2591.9	

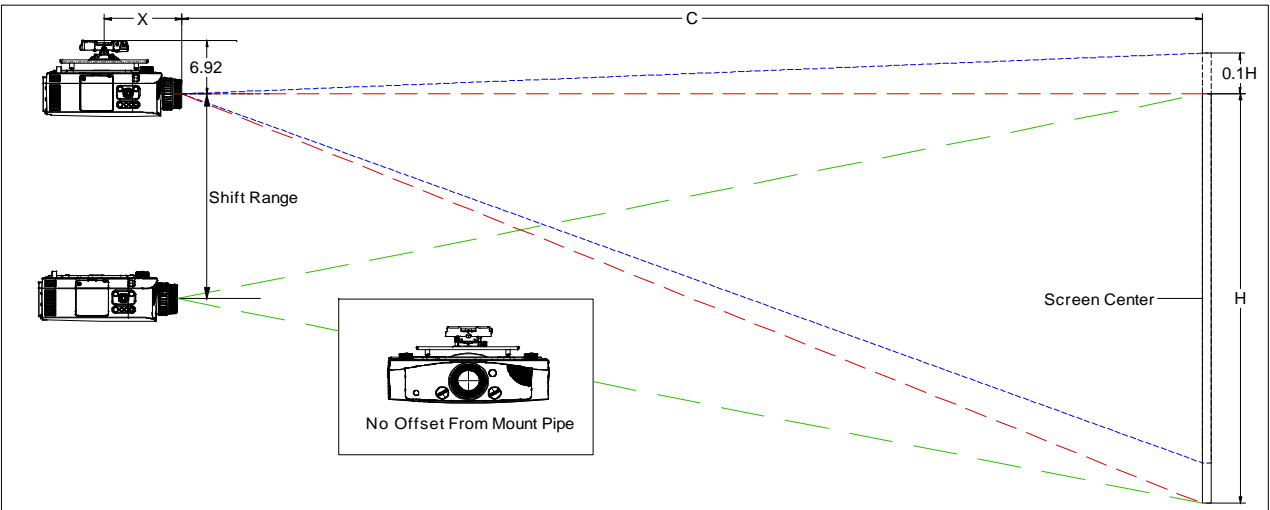
Note: For screen sizes not indicated in projection tables, refer to formulas above respective charts.

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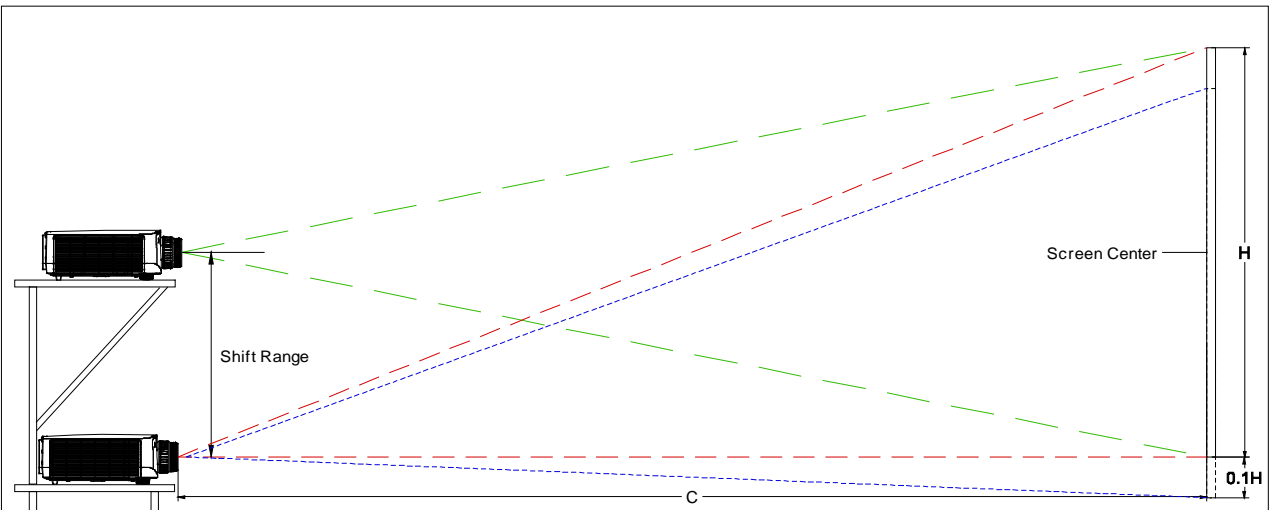
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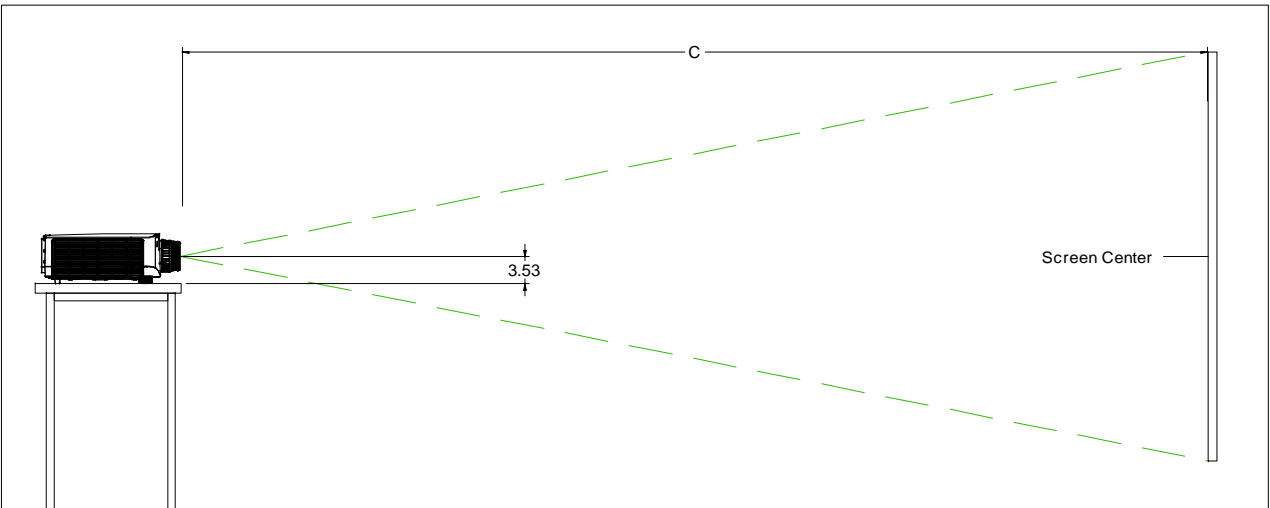
Ceiling Mount Installation



Desktop Installation



Note: Lens Shift Feature is not available to NP11FL. This lens should only be used for "zero degree"/"no-offset" applications. See below

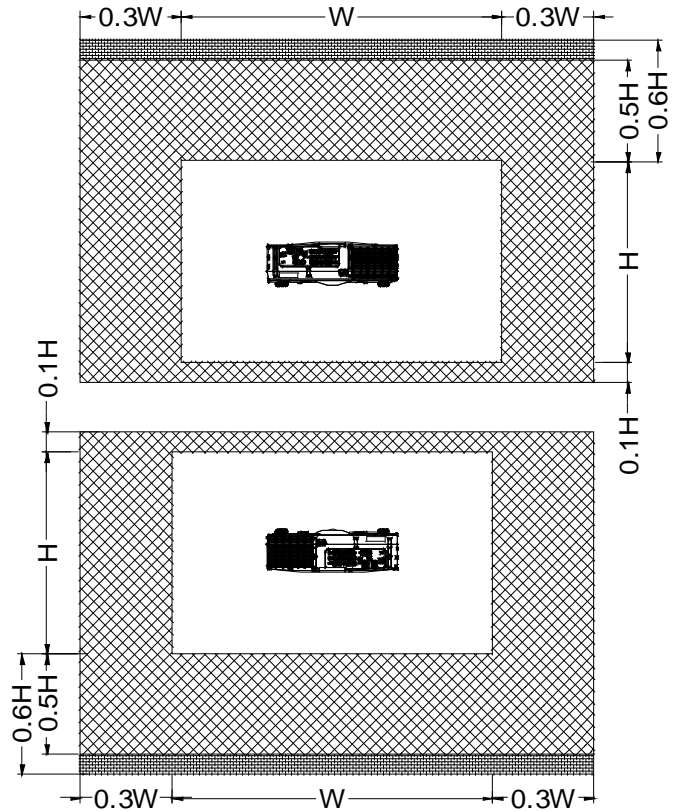
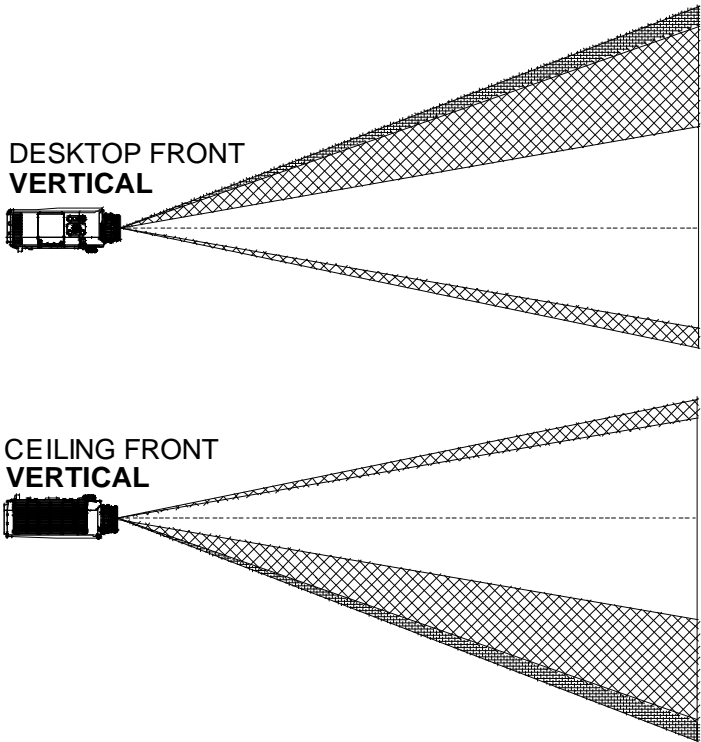


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Lens Shift Adjustable Range



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 NP11FL (rear lens). NP11FL should be used only for "zero degree" / "no-offset" applications.

Maximum Possible Range for NP12ZL, NP13ZL, NP14ZL, NP15ZL:

Towards ceiling/floor: 0.5H (0.6H for PA550W)

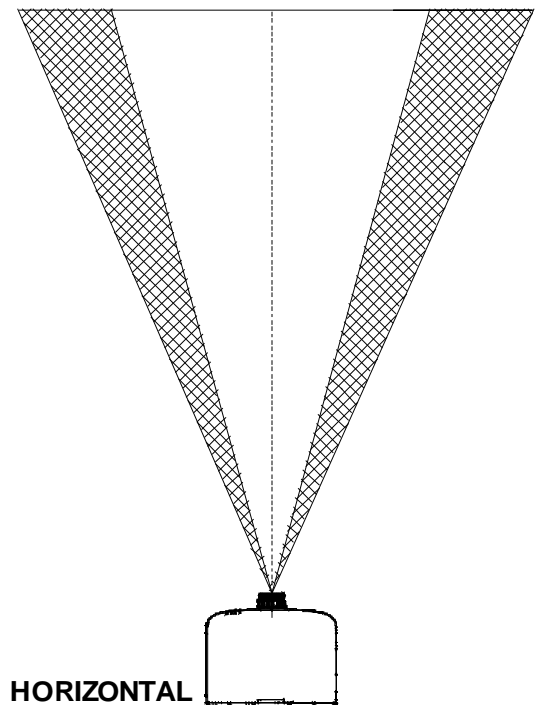
Away from ceiling/floor: 0.1H

Right: 0.3W

Left: 0.3W

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

Note: Horizontal lens shift range for the PA500U is 0.15W at a 200" projected image with NP13ZL



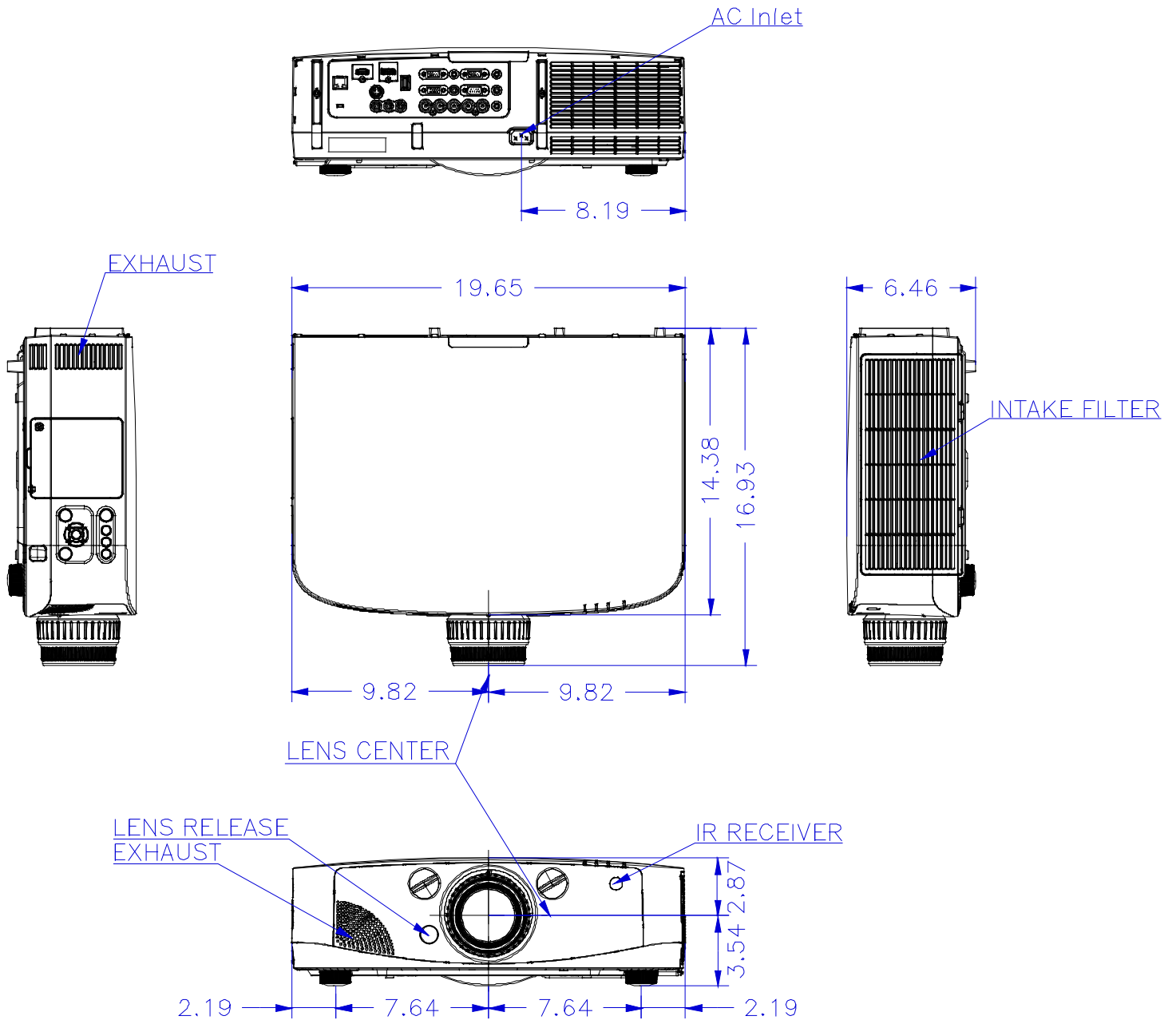
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Cabinet Dimensions

The following diagrams show the cabinet dimensions for the PA500U/PA500X/PA550W/PA600X. Dimensions are in inches. For millimeters multiply by 25.4.

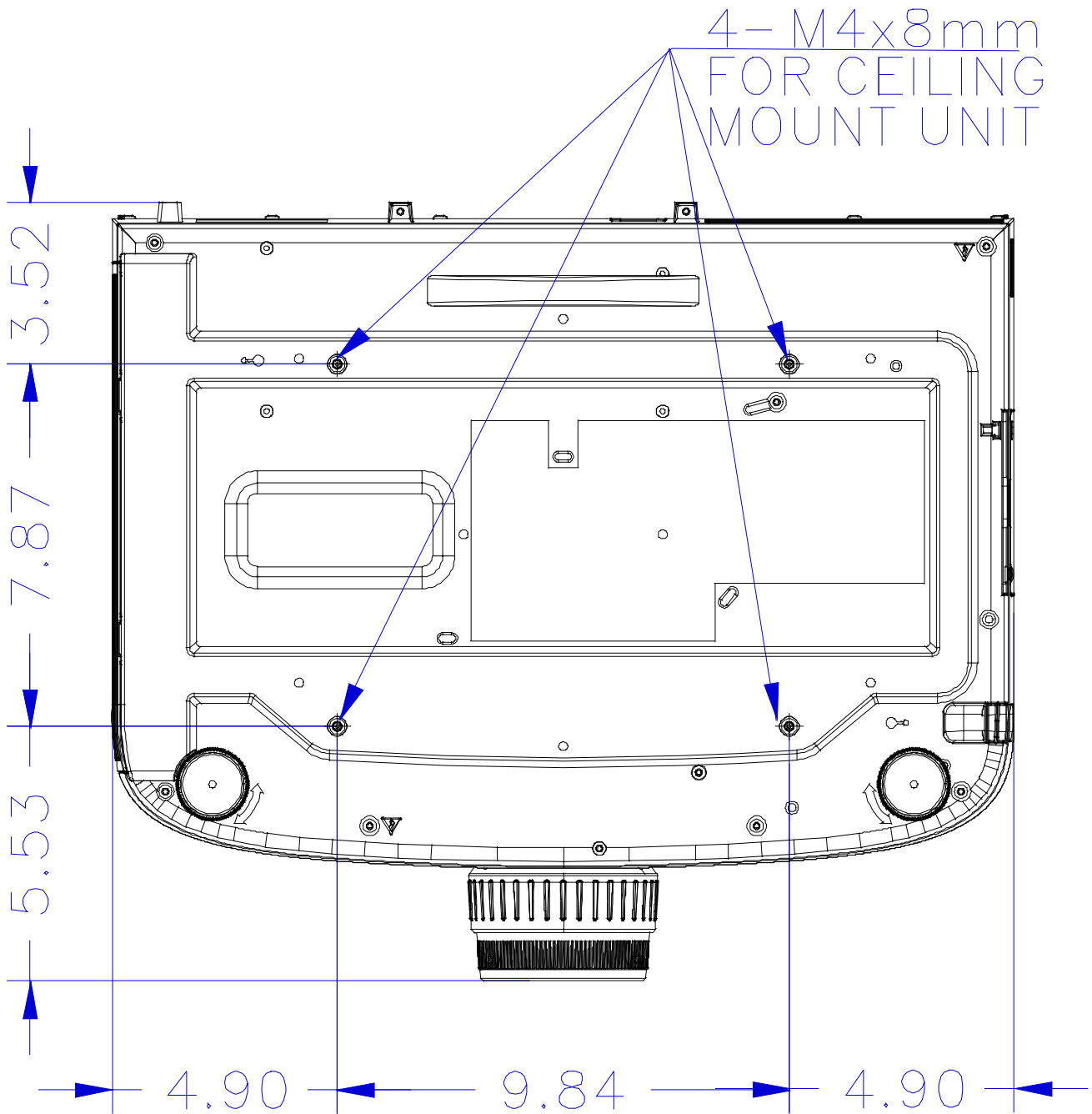


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Cabinet Dimensions



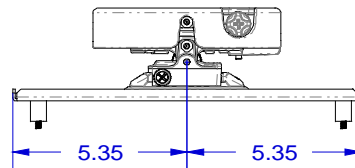
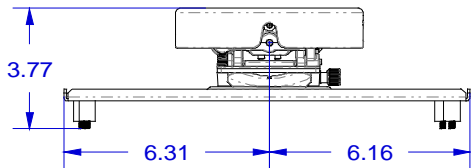
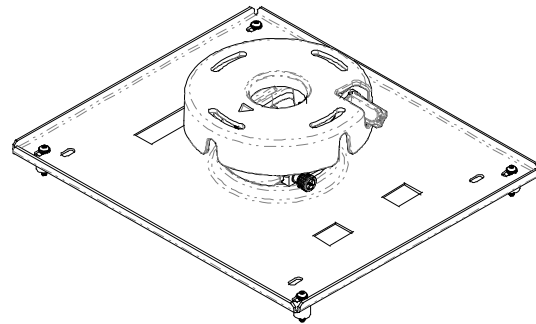
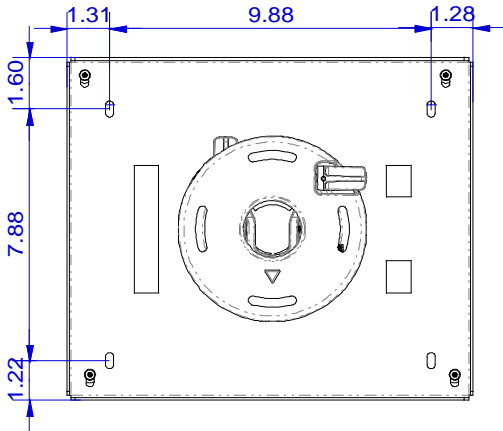
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Optional Ceiling Mount Dimensions (Model #: NP3250CM)

The following diagrams show ceiling mount dimensions for the NP3250CM. Dimensions are in inches. For millimeters multiply by 25.4.



Input Panel



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PC Control Codes

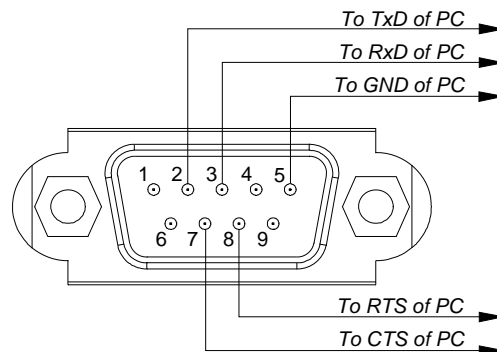
Function	Code Data
POWER ON	02H 00H 00H 00H 00H 02H
POWER OFF	02H 01H 00H 00H 00H 03H
INPUT SELECT COMPUTER 1	02H 03H 00H 00H 02H 01H 01H 09H
INPUT SELECT COMPUTER 2	02H 03H 00H 00H 02H 01H 02H 0AH
INPUT SELECT COMPUTER 3	02H 03H 00H 00H 02H 01H 1AH 22H
INPUT SELECT HDMI	02H 03H 00H 00H 02H 01H 03H 08H
INPUT SELECT DisplayPort	02H 03H 00H 00H 02H 01H 1BH 23H
INPUT SELECT S-VIDEO	02H 03H 00H 00H 02H 01H 0BH 13H
INPUT SELECT VIEWER	02H 03H 00H 00H 02H 01H 1FH 27H
INPUT SELECT NETWORK	02H 03H 00H 00H 02H 01H 20H 28H
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 Screen)	
4:3	03H 10H 00H 00H 05H 18H 00H 00H 00H 00H 30H
LETTERBOX	03H 10H 00H 00H 05H 18H 00H 00H 01H 00H 31H
WIDESCREEN	03H 10H 00H 00H 05H 18H 00H 00H 02H 00H 32H
ZOOM	03H 10H 00H 00H 05H 18H 00H 00H 03H 00H 33H
ASPECT RATIO (RGB)	
4:3 WINDOW	03H 10H 00H 00H 05H 18H 00H 00H 00H 00H 30H
16:9	03H 10H 00H 00H 05H 18H 00H 00H 02H 00H 32H
5:4	03H 10H 00H 00H 05H 18H 00H 00H 0BH 00H 3BH
16:10	03H 10H 00H 00H 05H 18H 00H 00H 0CH 00H 3CH
15:9	03H 10H 00H 00H 05H 18H 00H 00H 0DH 00H 3DH
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 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.