

PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

Contents

Product Description, Lens Specs, Screen/Aspect Ratio

Notes and Formulas	Pg 1
Distance Charts and Formulas	Pg 1-2
Ceiling Mount/Desktop Installation	Pg 3-4
Lens Shift Adjustable Range	Pg 5
Cabinet Dimensions (Front, Top, Left, Right, Back)	Pg 6
Cabinet Dimensions (Bottom)	Pg 7
Optional Lens Dimensions	Pg 8-9
Optional Mount Dimensions	Pg 10-11
Ventilation Requirements	Pg 12
Input Panel and Button Panel	Pg 13
Control Codes	Pg 14



Product Description

Type:	3 chip DMD Reflection Type 0.96 in. 2x LVDS DMD	Dimensions: 25.7"(W) x 13.1"(H) x 27.6"(D)
Resolution:	1920 x 1200 (16:10)	Weight: 87.1 lbs. / 39.5kg
Fan Noise:	PH1000U: 43 dB / 39dB @ 1 meter PH1400U: 48 dB / 44dB @ 1 meter	Brightness: PH1000U: 11,000 Lumens PH1400U: 14,000 Lumens
Power Consumption:	PH1000U: 1100W (max) PH1400U: 1215W (max)	BTU's: PH1000U: 3754 BTU/hour PH1400U: 4146 BTU/hour

Network Ready, integrated wired and wireless adapter
Powered: Horizontal & Vertical Lens Shift, Zoom, Focus

Lens Specifications

NP25FL:	Throw Ratio: ~ 0.67:1 Screen Sizes: 77"-215"	Focal Length: 14.6mm F/#: 2.5	NP28ZL:	Throw Ratio: 2.56 -4.16:1 Screen Sizes: 100-500"	Focal Length: 52.4 – 85.3mm F/#: 2.5
NP26ZL:	Throw Ratio: 1.39 - 1.87:1 Screen Sizes: 100-500"	Focal Length: 28.9 – 38.9mm F/#: 2.5	NP29ZL:	Throw Ratio: 4.16 – 6.96:1 Screen Sizes: 100-500"	Focal Length: 84.9 – 142mm F/#: 2.5
NP27ZL:	Throw Ratio: 1.87. – 2.56:1 Screen Sizes: 100-500"	Focal Length: 39.0 – 53.4mm F/#: 2.5	NP32ZL:	Throw Ratio: 0.9 – 1.1:1 Screen Sizes: 70-600"	Focal Length: 19.4 – 23.3mm F#: Wide - 2.5 Tele – 2.7

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 $\pm 5\%$.

Formulas: 16:10 Aspect Ratio (PH1000U—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:

NP25FL:	C = 0.707W – 3.15
NP26ZL:	C(Wide) = 1.395W – 3.676 ----- C(Tele) = 1.877W – 3.592
NP27ZL:	C(Wide) = 1.883W – 3.425 ----- C(Tele) = 2.576W – 3.425
NP28ZL:	C(Wide) = 2.530W + 7.750 ----- C(Tele) = 4.112W + 7.469
NP29ZL:	C(Wide) = 4.092W + 9.770 ----- C(Tele) = 6.850W + 9.699
NP32ZL:	C(Wide) = 0.927W - 2.671 ----- C(Tele) = 1.115W - 2.671

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

16:9 Screen Formulas

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

PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

Distance Chart for popular 16:10 Screens (WUXGA)

Screen Size (16:10)			Rear Lens	Zoom Lenses									
			NP25FL	NP32ZL		NP26ZL		NP27ZL		NP28ZL		NP29ZL	
Diagonal	Width(W)	Height (H)	0.67:1	0.9-1.1:1		1.39-1.87:1		1.87-2.56:1		2.56-4.16:1		4.16-6.96:1	
inches	inches	inches	inches	inches		inches		inches		inches		inches	
30	25	16	-	-	-	31.8	- 44.2	44.5	- 62.1	72.1	112.1	113.9	184.0
40	34	21	20.83	-	-	43.6	- 60.1	60.4	- 84.0	93.6	146.9	148.6	242.1
60	51	32	32.82	-	-	67.3	- 91.9	92.4	- 127.6	136.5	216.7	218.0	358.2
67	57	36	37.02	-	-	75.6	- 103.1	103.6	- 142.9	151.5	241.1	242.3	398.9
72	61	38	40.02	53.9	- 65.4	81.5	- 111.0	111.5	- 153.9	162.2	258.5	259.6	427.9
84	71	45	47.21	63.4	- 76.8	95.7	- 130.1	130.7	- 180.1	188.0	300.4	301.3	497.6
90	76	48	50.81	68.1	- 82.4	102.8	- 139.7	140.3	- 193.2	200.8	321.3	322.1	532.5
100	85	53	56.80	75.9	- 91.9	114.6	- 155.6	156.3	- 215.0	222.3	356.2	356.8	590.6
120	102	64	68.79	91.7	- 110.8	138.3	- 187.4	188.2	- 258.7	265.2	425.9	426.2	706.8
150	127	79	86.78	115.2	- 139.2	173.8	- 235.2	236.1	- 324.2	329.6	530.5	530.3	881.0
180	153	95	104.77	138.8	- 167.5	209.3	- 282.9	284.0	- 389.8	393.9	635.1	634.4	1055.3
210	178	111	-	162.4	- 195.9	244.7	- 330.7	331.9	- 455.3	458.3	739.7	738.5	1229.5
240	204	127	-	186.0	- 224.3	280.2	- 378.4	379.8	- 520.8	522.7	844.3	842.6	1403.8
270	229	143	-	209.6	- 252.6	315.7	- 426.2	427.7	- 586.4	587.0	948.9	946.7	1578.1
300	254	159	-	233.2	- 281.0	351.2	- 473.9	475.6	- 651.9	651.4	1053.6	1050.8	1752.3
400	339	212	-	311.8	- 375.5	469.5	- 633.1	635.3	- 870.4	865.9	1402.3	1397.8	2333.2
500	424	265	-	390.4	- 470.1	587.8	- 792.3	795.0	- 1088.8	1080.5	1751.0	1744.8	2914.1

Distance Chart for popular 16:9 Screens (1080p)

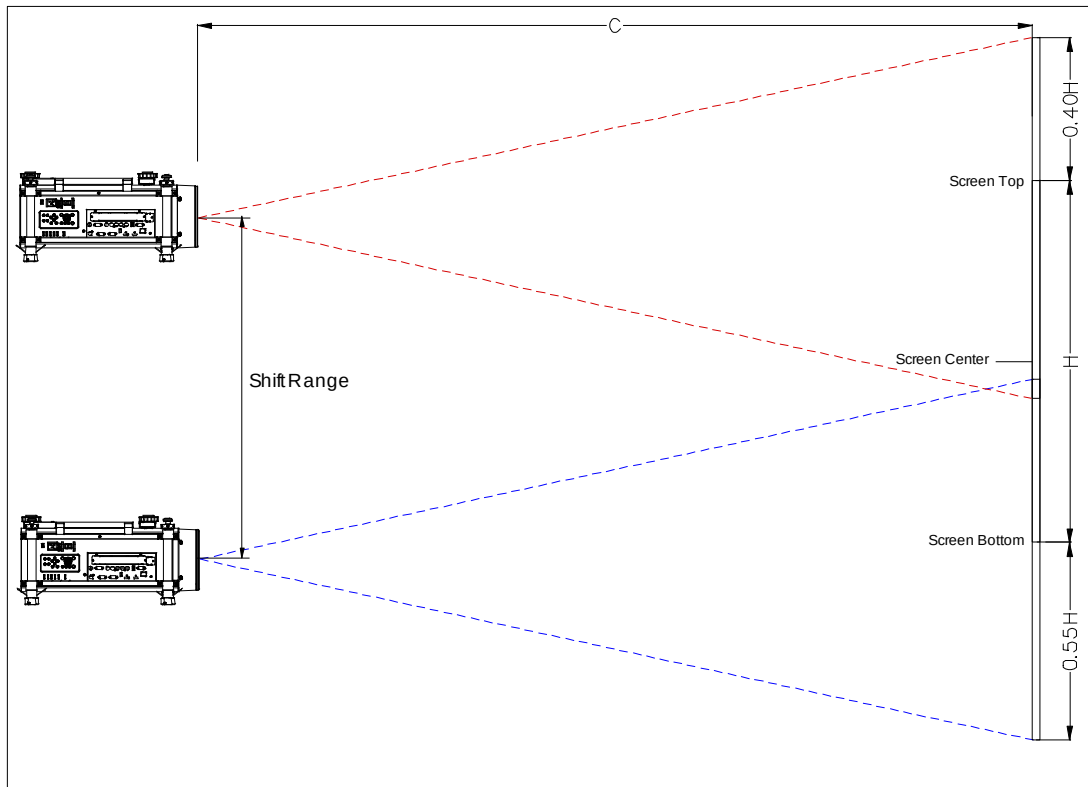
Screen Size (16:9)			Rear Lens	Zoom Lenses									
			NP25FL	NP32ZL		NP26ZL		NP27ZL		NP28ZL		NP29ZL	
Diagonal	Width(W)	Height (H)	0.67:1	0.9-1.1:1		1.39-1.87:1		1.87-2.56:1		2.56-4.16:1		4.16-6.96:1	
inches	inches	inches	inches	inches		inches		inches		inches		inches	
29	25	15	-	-	-	31.8	- 44.2	44.5	- 62.1	72.1	112.1	113.9	183.96
43	37	21	23.24	-	-	48.4	- 66.5	66.9	- 92.7	102.2	161.0	162.5	265.43
65	57	32	37.07	-	-	75.7	- 103.2	103.7	- 143.1	151.7	241.4	242.6	399.39
73	64	36	42.10	56.7	- 68.7	85.6	- 116.5	117.1	- 161.4	169.7	270.6	271.7	448.1
78	68	38	44.61	60.0	- 72.7	90.6	- 123.2	123.8	- 170.6	178.7	285.3	286.2	472.45
92	80	45	53.41	71.5	- 86.5	107.9	- 146.6	147.2	- 202.7	210.2	336.4	337.1	557.7
98	85	48	57.18	76.4	- 92.5	115.4	- 156.6	157.3	- 216.4	223.6	358.4	359.0	594.23
108	94	53	63.47	84.7	- 102.4	127.8	- 173.3	174.0	- 239.3	246.1	394.9	395.3	655.12
131	114	64	77.29	102.8	- 124.2	155.0	- 210.0	210.8	- 289.7	295.6	475.3	475.3	789.08
161	140	79	96.14	127.5	- 153.9	192.2	- 260.0	261.0	- 358.4	363.1	585.0	584.5	971.74
194	169	95	116.25	153.9	- 185.6	231.9	- 313.4	314.6	- 431.6	435.0	701.9	700.9	1166.6
226	197	111	-	180.3	- 217.4	271.6	- 366.8	368.2	- 504.9	507.0	818.9	817.3	1361.4
259	226	127	-	206.6	- 249.1	311.3	- 420.2	421.7	- 578.2	579.0	935.9	933.7	1556.3
292	254	143	-	233.0	- 280.8	351.0	- 473.6	475.3	- 651.5	650.9	1052.8	1050.0	1751.1
324	283	159	-	259.4	- 312.5	390.6	- 527.0	528.8	- 724.7	722.9	1169.8	1166.4	1946
400	349	212	-	320.9	- 386.5	483.2	- 651.5	653.7	- 895.6	890.7	1442.6	1437.9	2400.3
500	436	265	-	401.5	- 483.5	604.5	- 814.8	817.6	- 1119.7	1110.8	1800.3	1793.9	2996.3

PH1000U/PH1400U Installation Guide

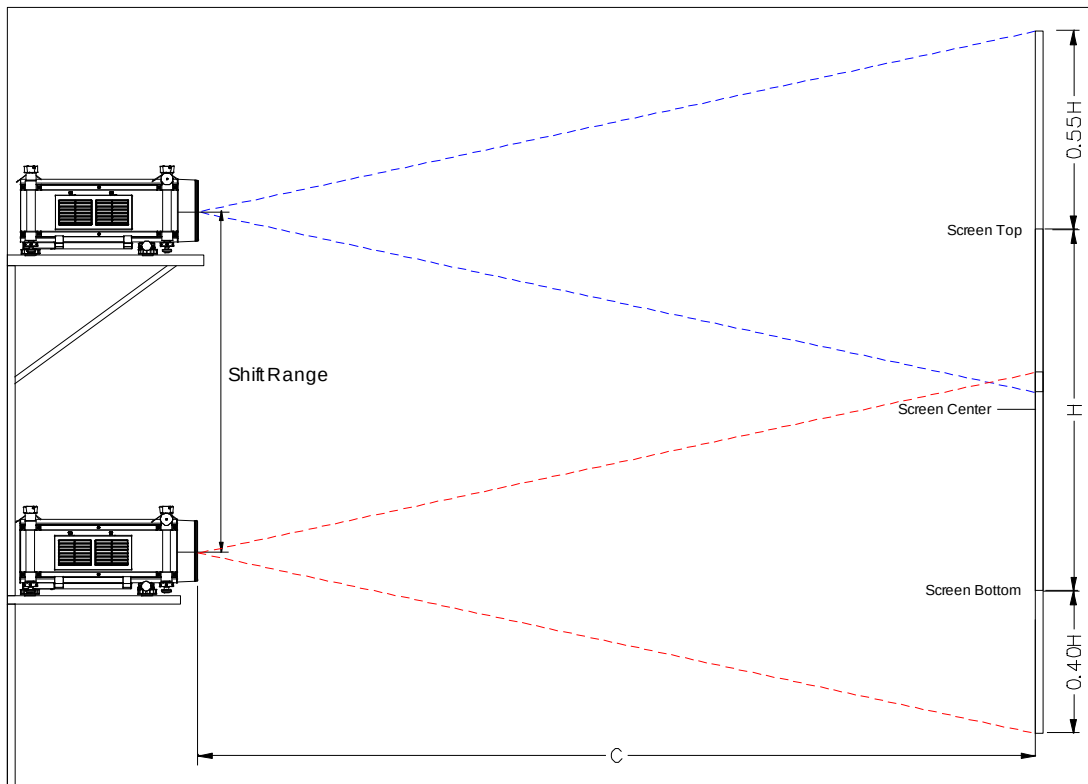
Desktop and Ceiling Mount

Rev 1.1

Ceiling Mount Installation



Desktop Installation

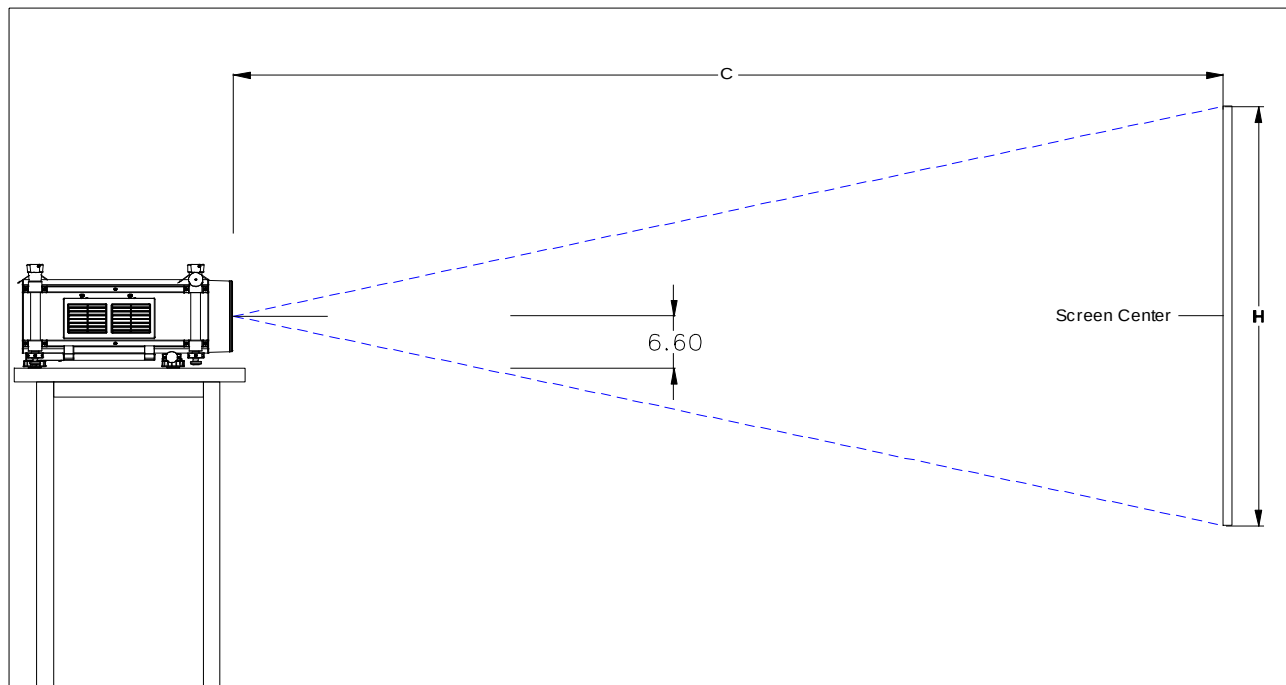


PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

Note: Lens Shift Feature is not available to NP25FL. This lens should only be used for “zero degree”/“no-offset” applications. See below

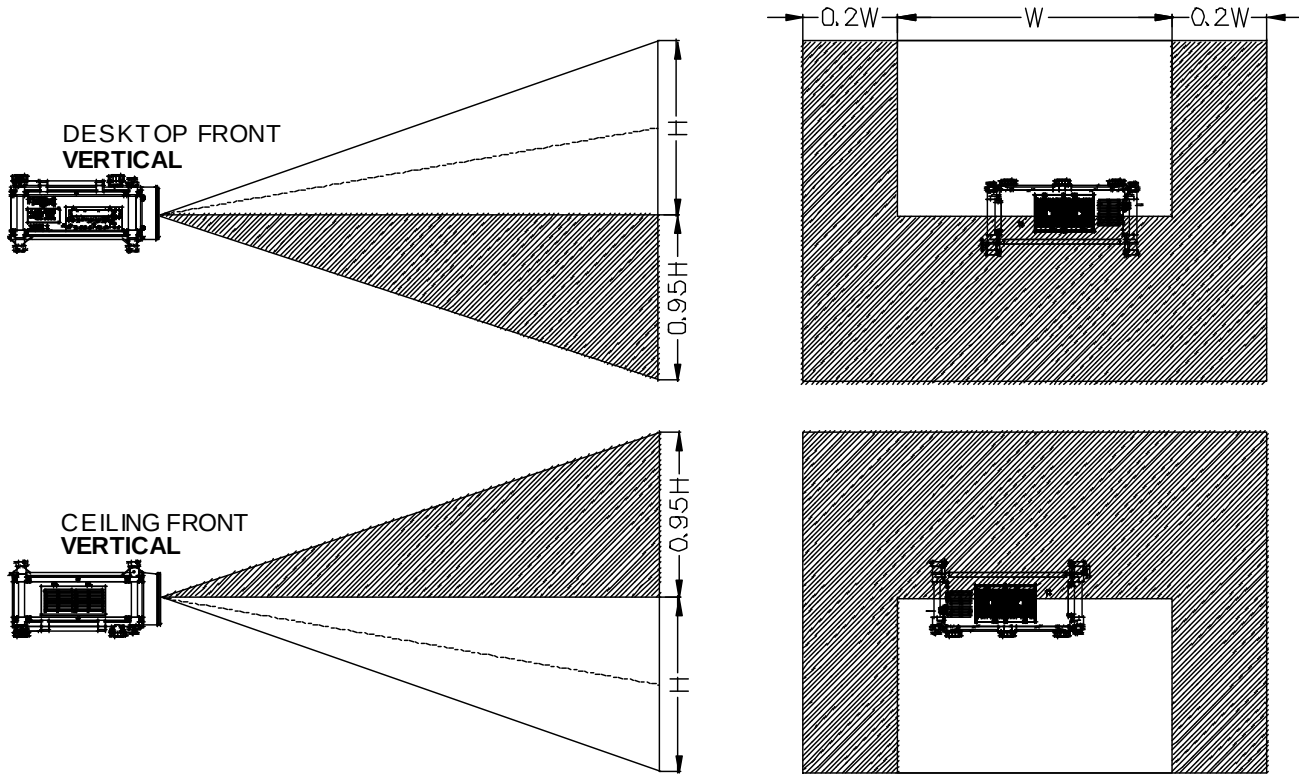


PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

Lens Shift Adjustable Range

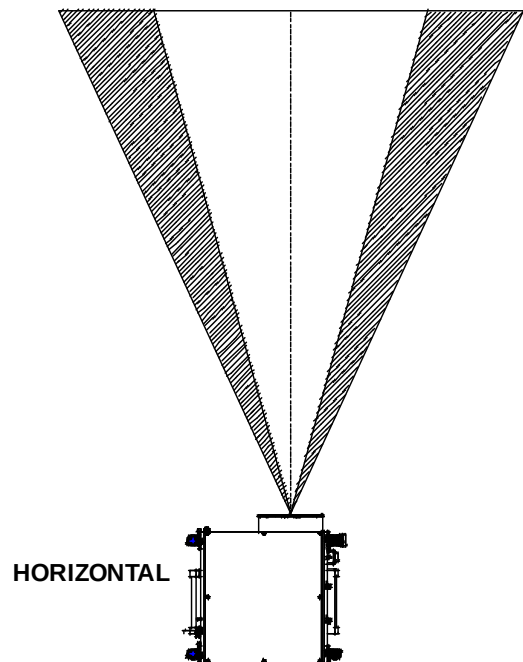


Lens Shift Range for Desktop and Ceiling Mount Application

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 NP25FL (rear lens). NP25FL should be used only for "zero degree" / "no-offset" applications.

Note: Projector is set out of the box at maximum lens shift, which is how it is depicted above.
(W: width of projected image, H: height of projected image)



PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

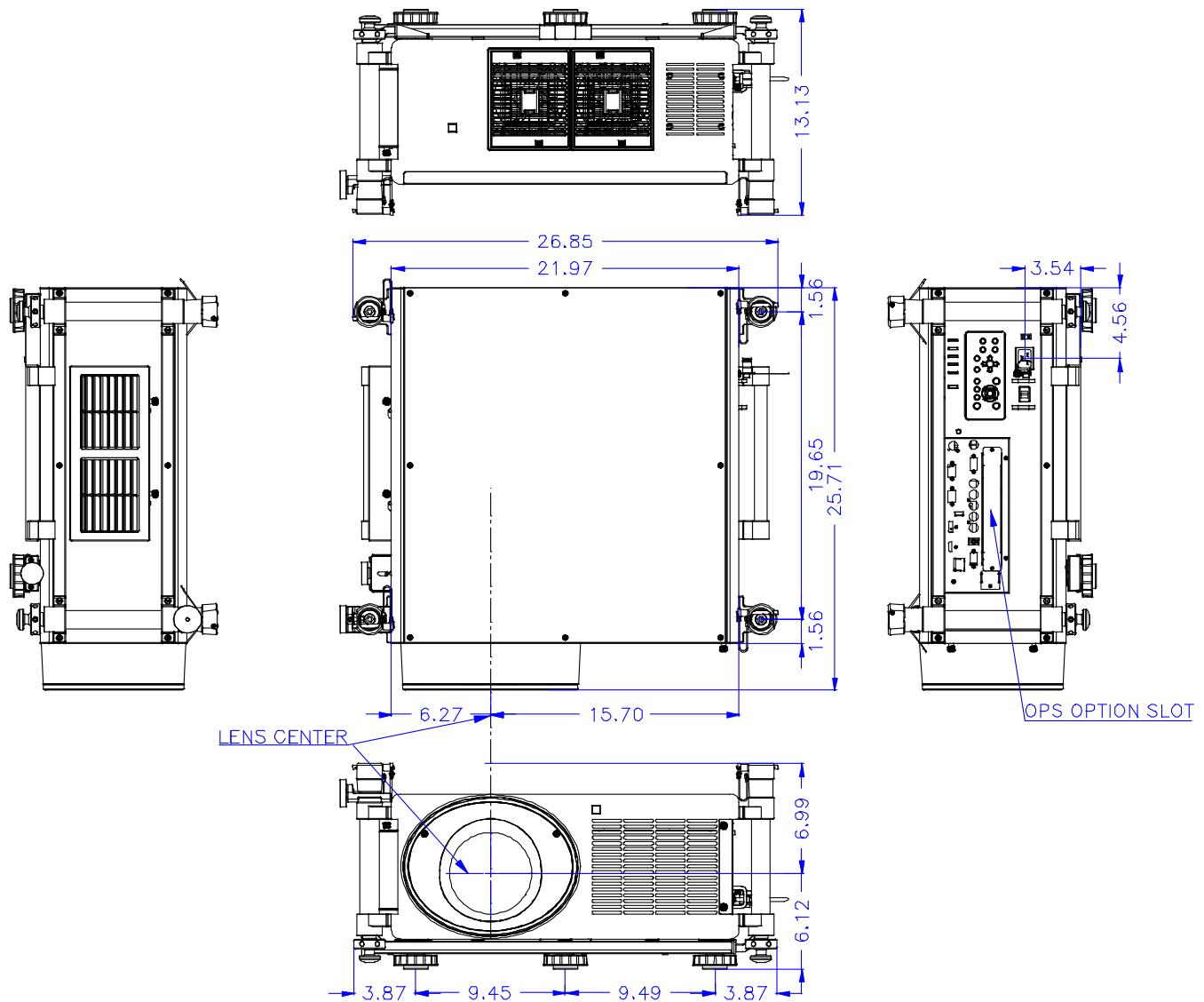
Rev 1.1

Cabinet Dimensions

The following diagrams show the cabinet dimensions for the PH1000U.

Dimensions are in inches. For millimeters multiply by 25.4.

Note: Dimensions below shown without lens

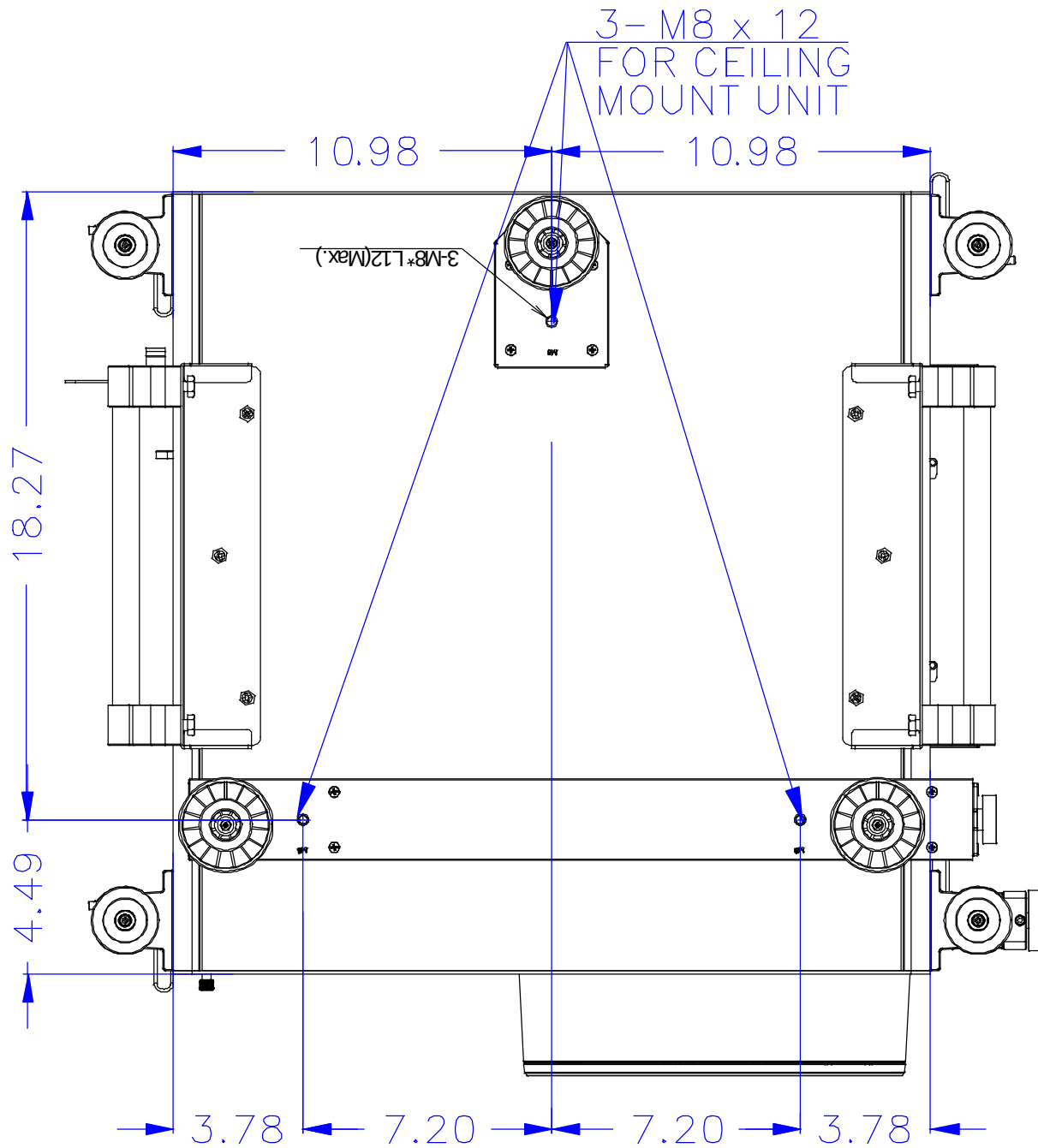


PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

Cabinet Dimensions

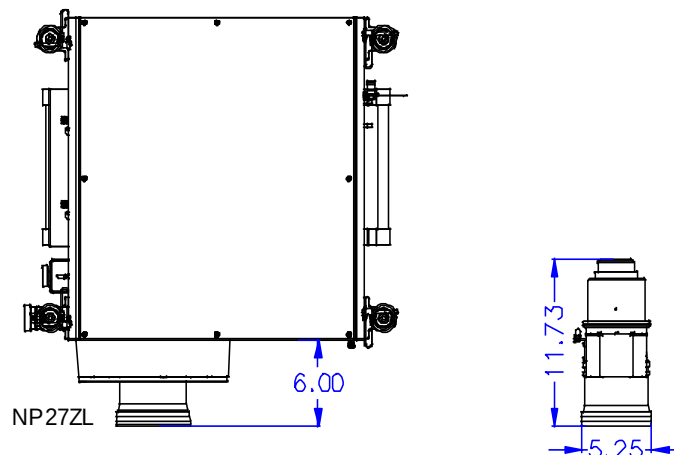
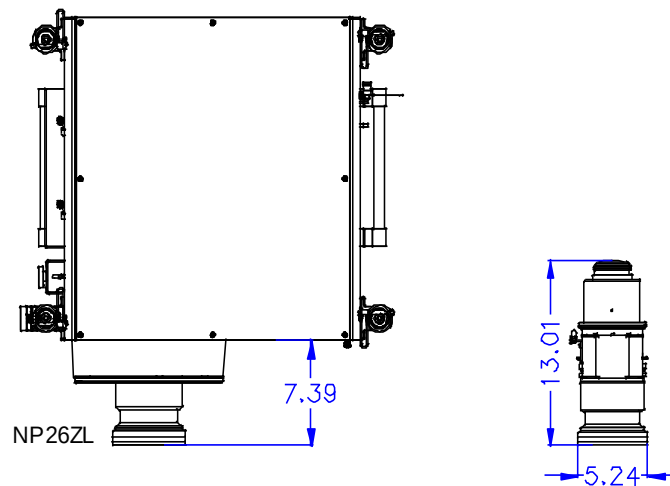
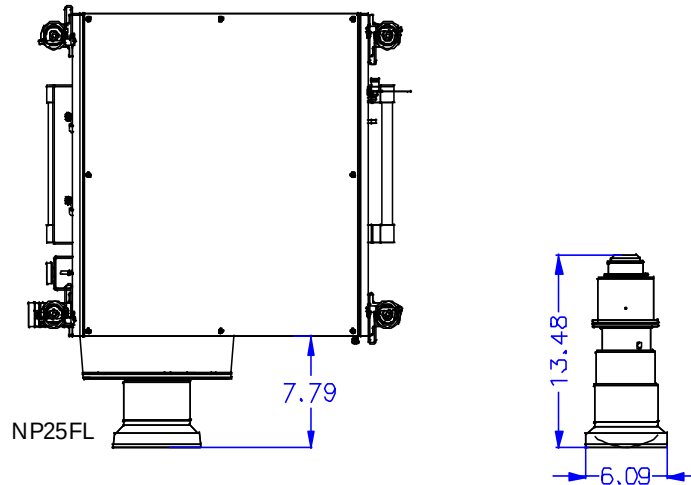


PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

Optional Lens Dimensions

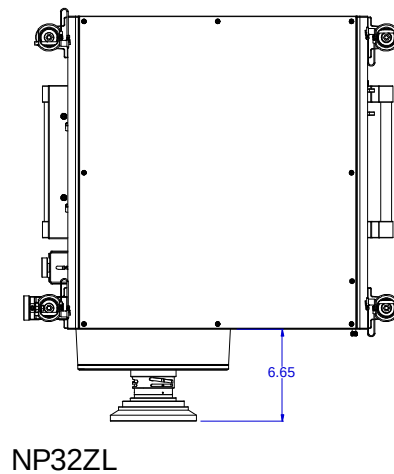
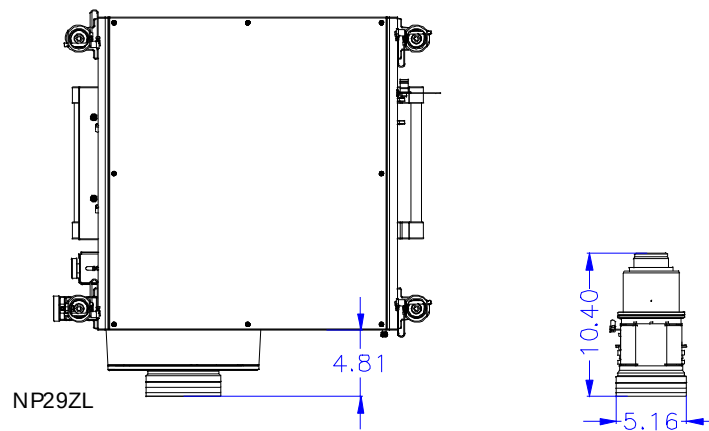
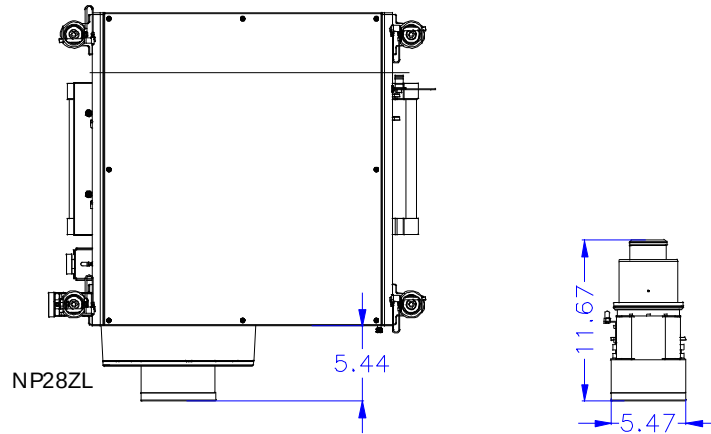


PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

Optional Lens Dimensions (Continued)

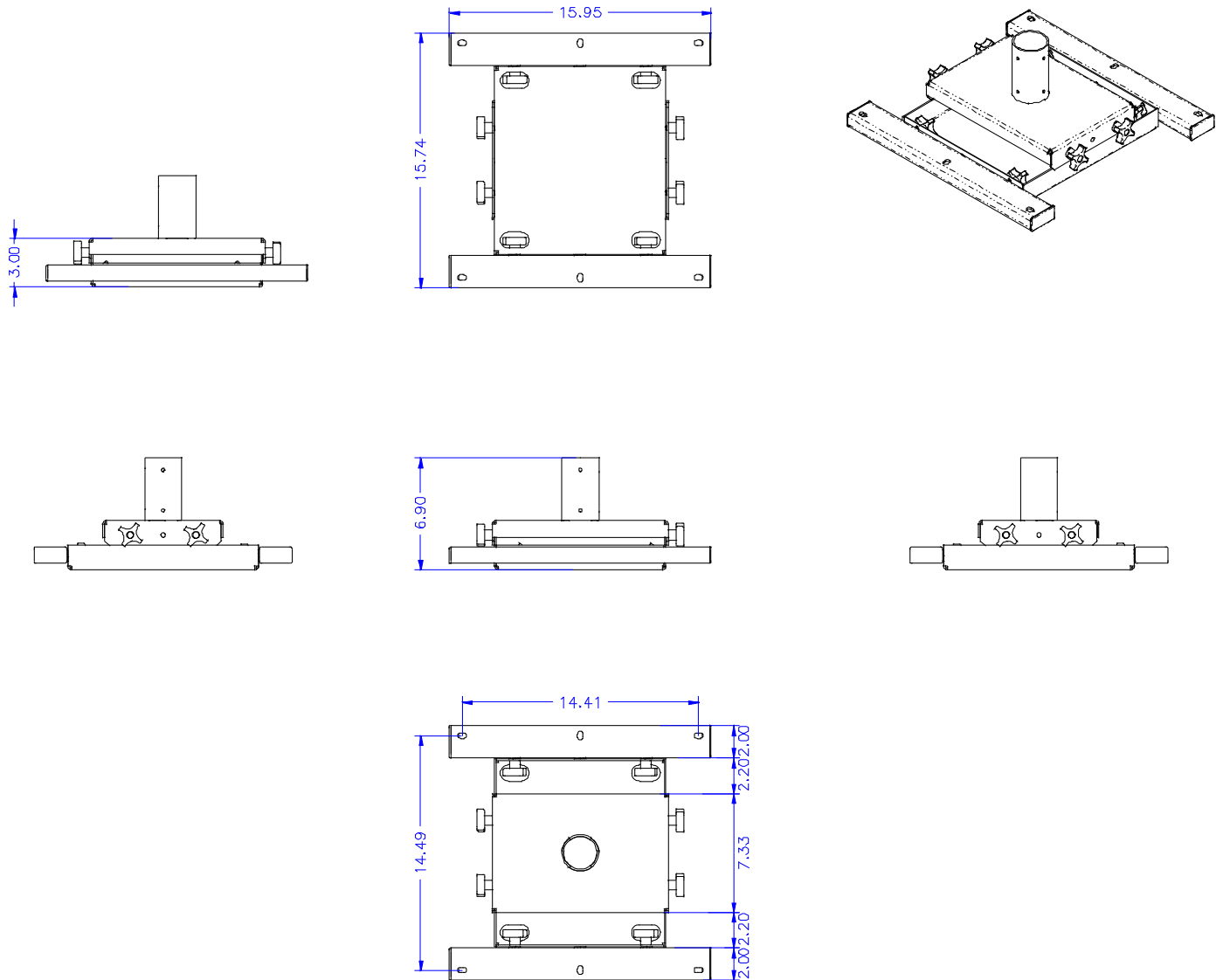


PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

Optional Mount Dimensions (PH1000CM)

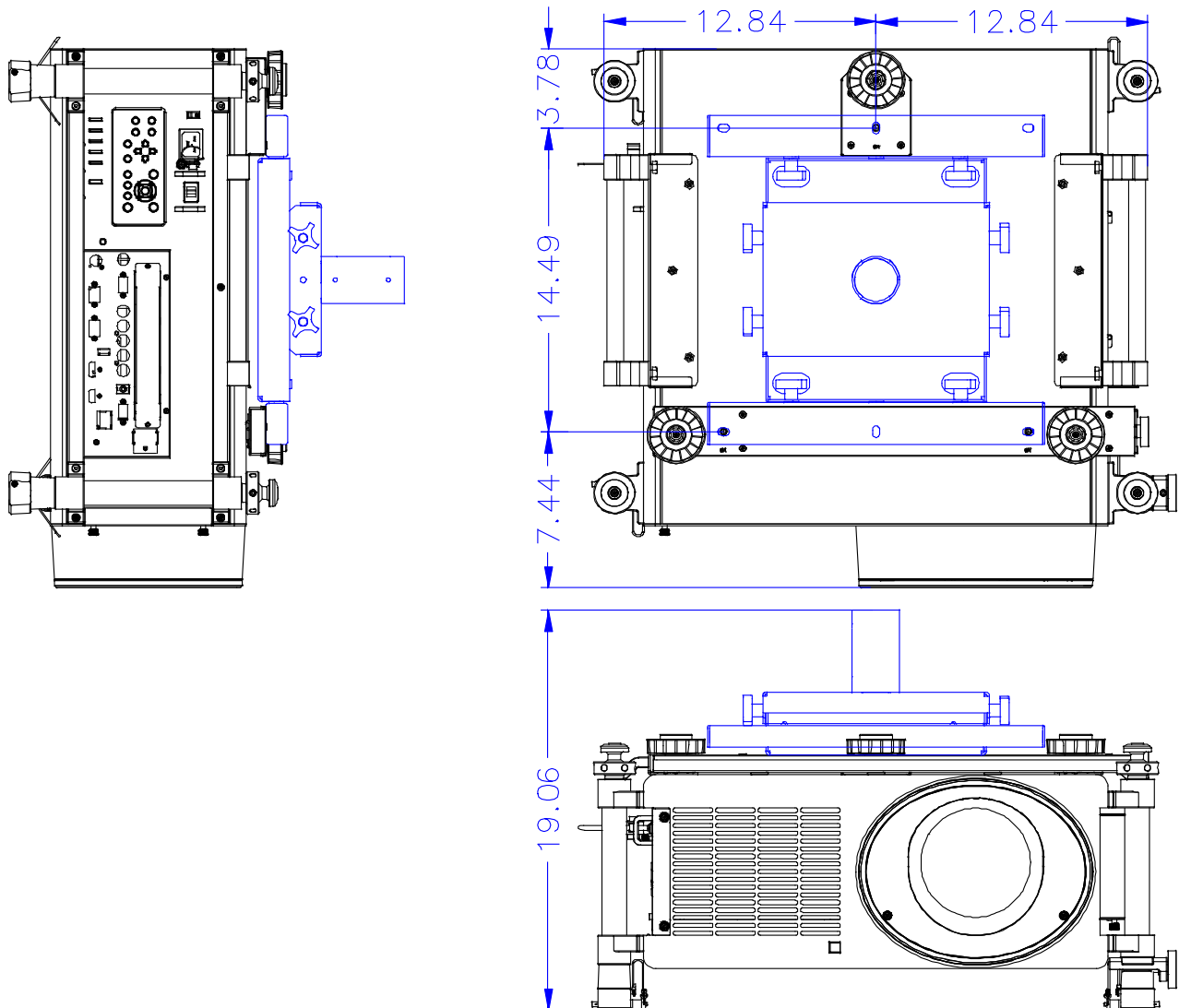


PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

PH1000U/PH1400U with Optional Mount (PH1000CM)



PH1000U/PH1400U Installation Guide

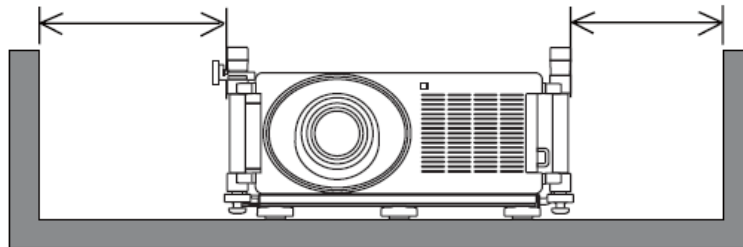
Desktop and Ceiling Mount

Rev 1.1

Ventilation Requirements

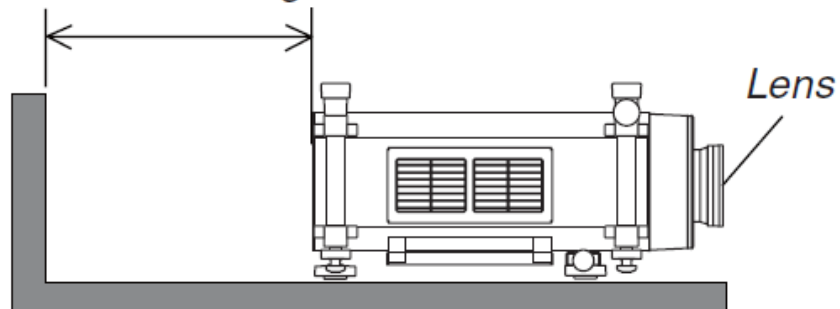
- If there are walls on both sides of the projector :

50 cm/19.7" or greater 30 cm/12" or greater

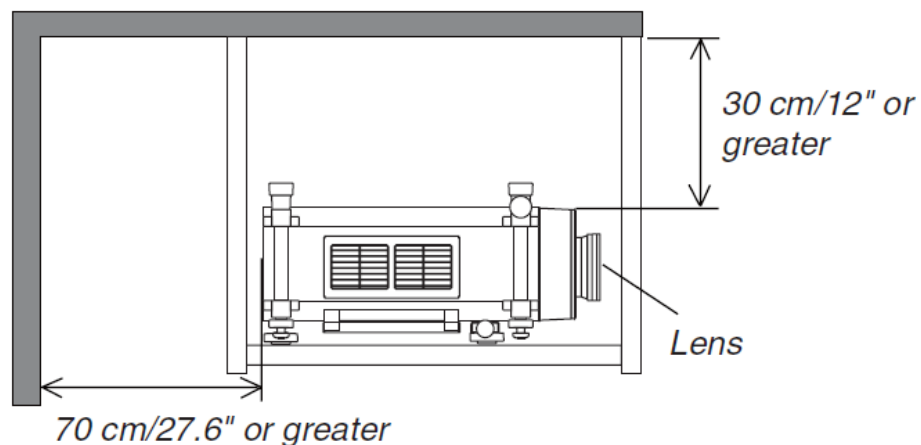


- If there's a wall behind the projector :

70 cm/27.6" or greater



- For ceiling mounting :



PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

Input Panel



Button Panel



PH1000U/PH1400U Installation Guide

Desktop and Ceiling Mount

Rev 1.1

PC Control Codes

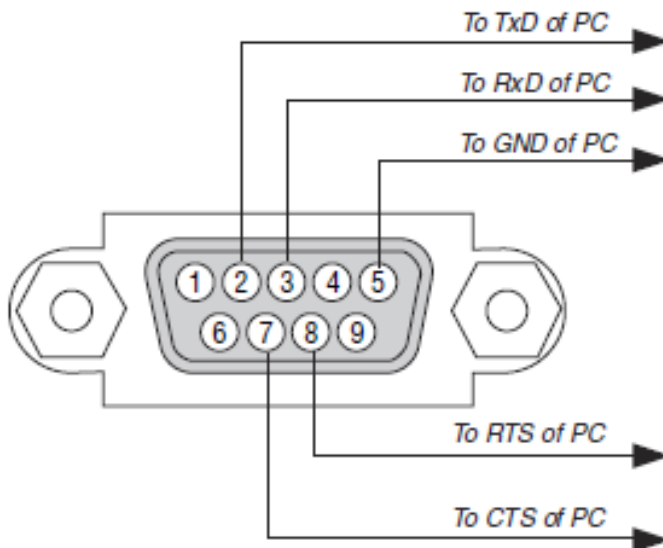
Function	Code Data							
POWER ON	02H	00H	00H	00H	00H	02H		
POWER OFF	02H	01H	00H	00H	00H	03H		
INPUT SELECT COMPUTER 1	02H	03H	00H	00H	02H	01H	01H	09H
INPUT SELECT COMPUTER 2	02H	03H	00H	00H	02H	01H	02H	0AH
INPUT SELECT COMPUTER 3	02H	03H	00H	00H	02H	01H	03H	0BH
INPUT SELECT HDMI	02H	03H	00H	00H	02H	01H	1AH	22H
INPUT SELECT DisplayPort	02H	03H	00H	00H	02H	01H	1BH	23H
INPUT SELECT VIDEO	02H	03H	00H	00H	02H	01H	06H	0EH
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		

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.