

PH1000U Installation Guide

Desktop and Ceiling Mount

Rev 1.2

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
Ventilation Requirements	Pg 10
Input Panel and Button Panel	Pg 11
Control Codes	Pg 12



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: PH1000U: 87.1 lbs. / 39.5kg
Fan Noise:	PH1000U: 43 dB / 39dB @ 1 meter	Brightness: PH1000U: 11,000 Lumens
Power Consumption:	PH1000U: 1008W (max)	BTU's: PH1000U: 3439.44 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: 80"-200"	Focal Length: 11.2mm F/#: 1.85	NP28ZL: Throw Ratio: 2.56 -4.16:1 Screen Sizes: 100-500"	Focal Length: 32.9 – 54.2mm F/#: 1.86 – 2.48
NP26ZL: Throw Ratio: 1.39 - 1.87:1 Screen Sizes: 100-500"	Focal Length: 18.7 – 26.5mm F/#: 1.85-2.5	NP29ZL: Throw Ratio: 4.16 – 6.96:1 Screen Sizes: 100-500"	Focal Length: 52.8 – 79.1mm F/#: 1.85-2.41
NP27ZL: Throw Ratio: 1.87. – 2.56:1 Screen Sizes: 100-500"	Focal Length: 25.7 – 33.7mm F/#: 1.64 – 1.86		

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:	$C = 0.707W - 3.714$	
NP26ZL:	$C(\text{Wide}) = 1.395W - 4.332$ ----- $C(\text{Tele}) = 1.877W - 4.236$	
NP27ZL:	$C(\text{Wide}) = 1.883W - 4.039$ ----- $C(\text{Tele}) = 2.576W - 4.039$	
NP28ZL:	$C(\text{Wide}) = 2.530W + 9.139$ ----- $C(\text{Tele}) = 4.112W + 8.808$	
NP29ZL:	$C(\text{Wide}) = 4.092W + 11.521$ ----- $C(\text{Tele}) = 6.850W + 11.437$	

Definitions:

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

16:10 Screen Formulas

$W = H \times 16/10$
 $H = W \times 10/16$
Screen Diagonal = $W \times 18.868/16$

16:9 Screen Formulas

$W = H \times 16/9$
 $H = W \times 9/16$
Screen Diagonal = $W \times 18.358/16$

PH1000U Installation Guide

Desktop and Ceiling Mount

Rev 1.2

Distance Chart for popular 16:10 Screens (WUXGA)

Screen Size (16:10)			Rear Lens	Zoom Lenses							
			NP25FL	NP26ZL		NP27ZL		NP28ZL		NP29ZL	
Diagonal	Width(W)	Height (H)	0.67:1	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	
30	25	16	-	31.2	- 43.5	43.9	- 61.5	73.5	113.4	115.6	185.7
40	34	21	20.27	43.0	- 59.4	59.8	- 83.3	95.0	148.3	150.3	243.8
60	51	32	32.26	66.6	- 91.3	91.8	- 127.0	137.9	- 218.0	219.7	360.0
67	57	36	36.45	74.9	- 102.4	102.9	- 142.3	152.9	- 242.4	244.0	400.6
72	61	38	39.45	80.8	- 110.4	110.9	- 153.2	163.6	- 259.9	261.4	429.7
84	71	45	46.65	95.0	- 129.5	130.1	- 179.5	189.4	- 301.7	303.0	- 499.4
90	76	48	50.24	102.1	- 139.0	139.7	- 192.6	202.2	- 322.6	323.8	- 534.2
100	85	53	56.24	114.0	- 154.9	155.6	- 214.4	223.7	- 357.5	358.5	- 592.3
120	102	64	68.23	137.6	- 186.8	187.6	- 258.1	266.6	- 427.2	427.9	- 708.5
150	127	79	86.22	173.1	- 234.5	235.5	- 323.6	331.0	- 531.9	532.0	- 882.8
180	153	95	104.20	208.6	- 282.3	283.4	- 389.2	395.3	- 636.5	636.1	- 1055.3
210	178	111	-	244.1	- 330.0	331.3	- 454.7	459.7	- 741.1	740.2	- 1229.5
240	204	127	-	279.6	- 377.8	379.2	- 520.2	524.0	- 845.7	844.3	- 1403.8
270	229	143	-	315.1	- 425.5	427.1	- 585.8	588.4	- 950.3	948.4	- 1578.1
300	254	159	-	350.6	- 473.3	475.0	- 651.3	652.8	- 1054.9	1050.8	- 1752.3
400	339	212	-	468.9	- 632.4	634.7	- 869.7	867.3	- 1403.6	1397.8	- 2333.2
500	424	265	-	587.1	- 791.6	794.3	- 1088.2	1081.9	1752.3	1744.8	- 2914.1

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

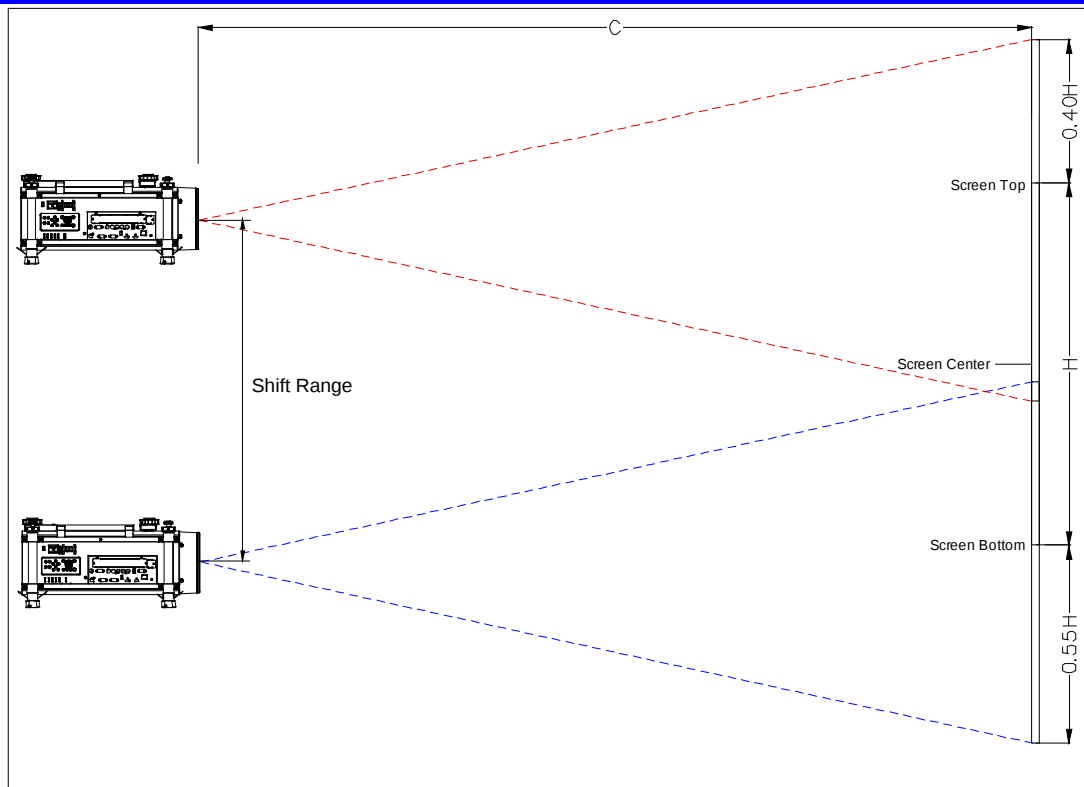
Screen Size (16:9)			Rear Lens	Zoom Lenses				
			NP25FL	NP26ZL	NP27ZL	NP28ZL	NP29ZL	
Diagonal	Width(W)	Height (H)	0.67:1	1.39-1.87:1	1.87-2.56-1	2.56-4.16:1	4.16-6.96:1	
inches	inches	inches	inches	inches	inches	inches	inches	
29	25	15	-	31.2 - 43.5	43.9 - 61.5	73.5 - 113.4	115.6 - 185.7	
43	37	21	22.68	47.7 - 65.8	66.3 - 92.1	103.6 - 162.3	164.3 - 267.2	
65	57	32	36.51	75.0 - 102.5	103.1 - 142.5	153.1 - 242.7	244.3 - 401.1	
73	64	36	41.53	84.9 - 115.9	116.5 - 160.8	171.1 - 272.0	273.4 - 449.8	
78	68	38	44.05	89.9 - 122.6	123.2 - 170.0	180.1 - 286.6	288.0 - 474.2	
92	80	45	52.85	107.3 - 145.9	146.6 - 202.0	211.5 - 337.8	338.9 - 559.4	
98	85	48	56.62	114.7 - 155.9	156.6 - 215.8	225.0 - 359.7	360.7 - 596.0	
108	94	53	62.90	127.1 - 172.6	173.4 - 238.7	247.5 - 396.2	397.1 - 656.9	
131	114	64	76.73	154.4 - 209.3	210.2 - 289.1	297.0 - 476.7	477.1 - 790.8	
161	140	79	95.58	191.6 - 259.4	260.4 - 357.7	364.5 - 586.3	586.2 - 973.5	
194	169	95	115.69	231.3 - 312.8	314.0 - 431.0	436.4 - 703.3	702.6 - 1166.6	
226	197	111	-	270.9 - 366.2	367.5 - 504.3	508.4 - 820.2	819.0 - 1361.4	
259	226	127	-	310.6 - 419.5	421.1 - 577.6	580.4 - 937.2	935.4 - 1556.3	
292	254	143	-	350.3 - 472.9	474.7 - 650.8	652.3 - 1054.2	1050.0 - 1751.1	
324	283	159	-	390.0 - 526.3	528.2 - 724.1	724.3 - 1171.1	1166.4 - 1946.0	
400	349	212	-	482.5 - 650.8	653.1 - 895.0	892.1 - 1443.9	1437.9 - 2400.3	
500	436	265	-	603.9 - 814.1	816.9 - 1119.1	1112.2 - 1801.6	2033.3 - 3140.7	

PH1000U Installation Guide

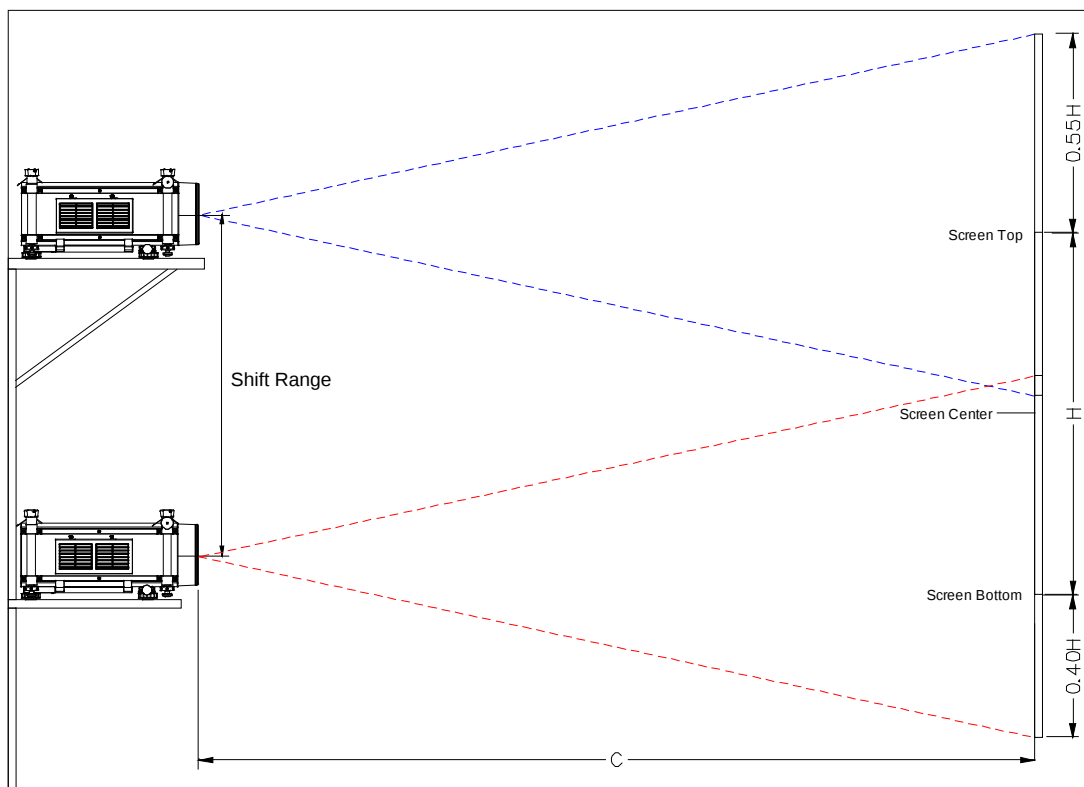
Desktop and Ceiling Mount

Rev 1.2

Ceiling Mount Installation



Desktop Installation

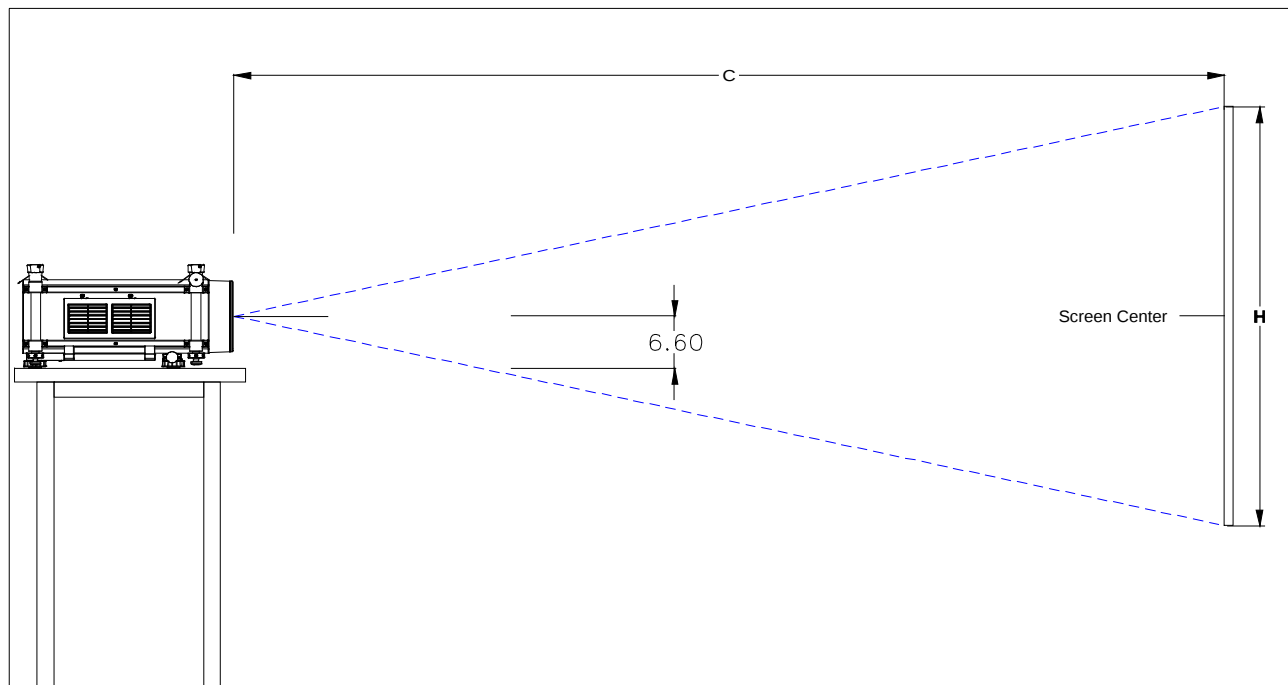


PH1000U Installation Guide

Desktop and Ceiling Mount

Rev 1.2

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

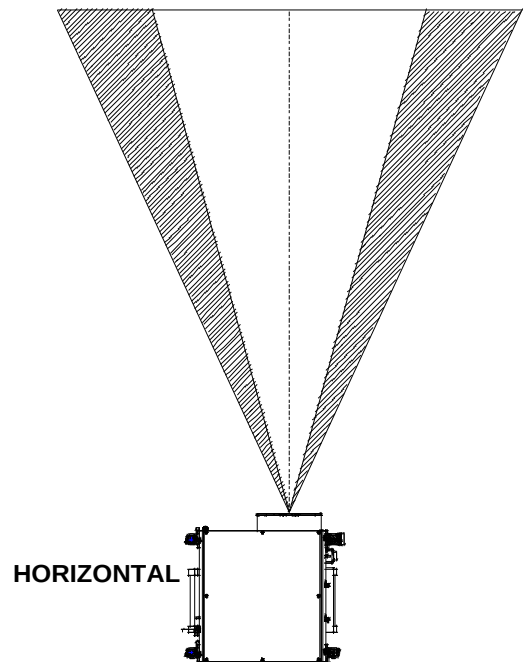
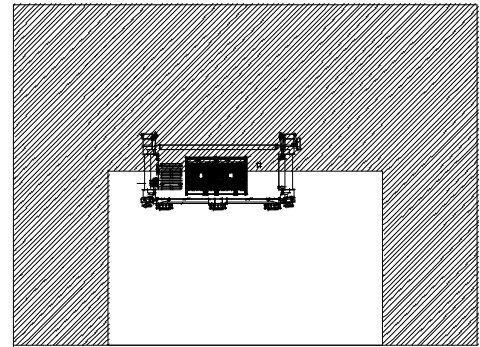
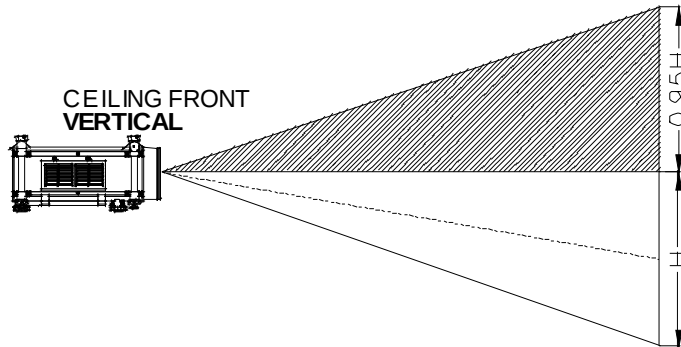
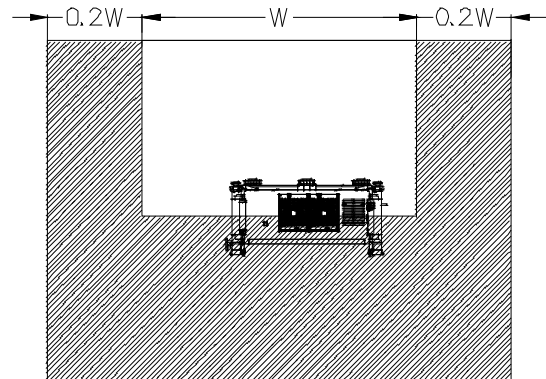
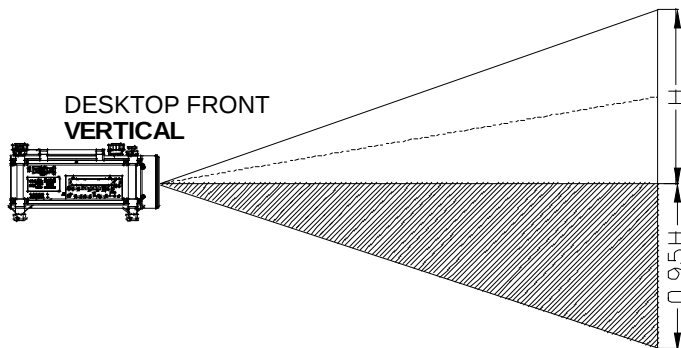


PH1000U Installation Guide

Desktop and Ceiling Mount

Rev 1.2

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 Installation Guide

Desktop and Ceiling Mount

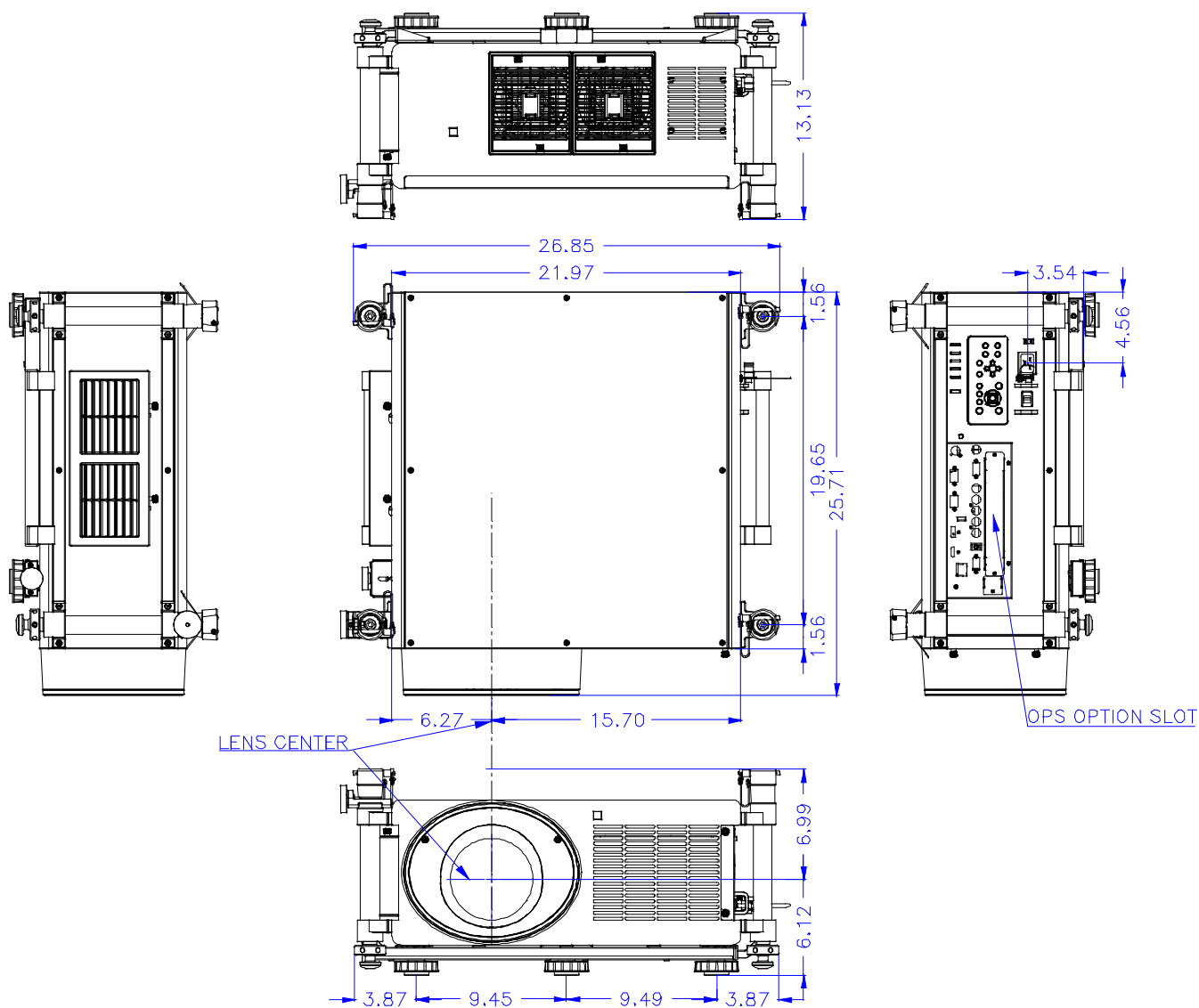
Rev 1.2

Cabinet Dimensions

The following diagrams show the cabinet dimensions for the PH1000U.

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

Note: Dimensions below shown without lens

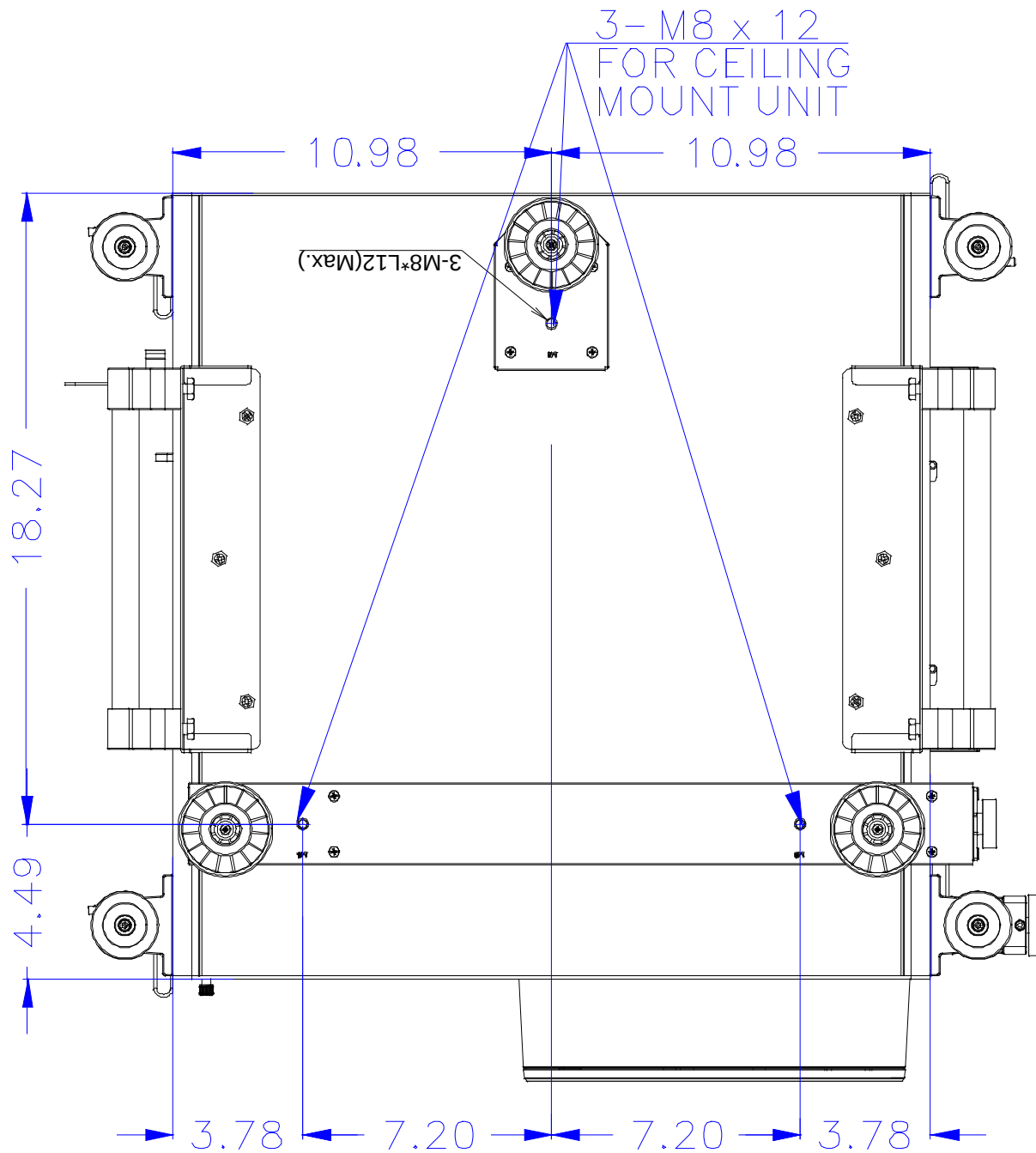


PH1000U Installation Guide

Desktop and Ceiling Mount

Rev 1.2

Cabinet Dimensions

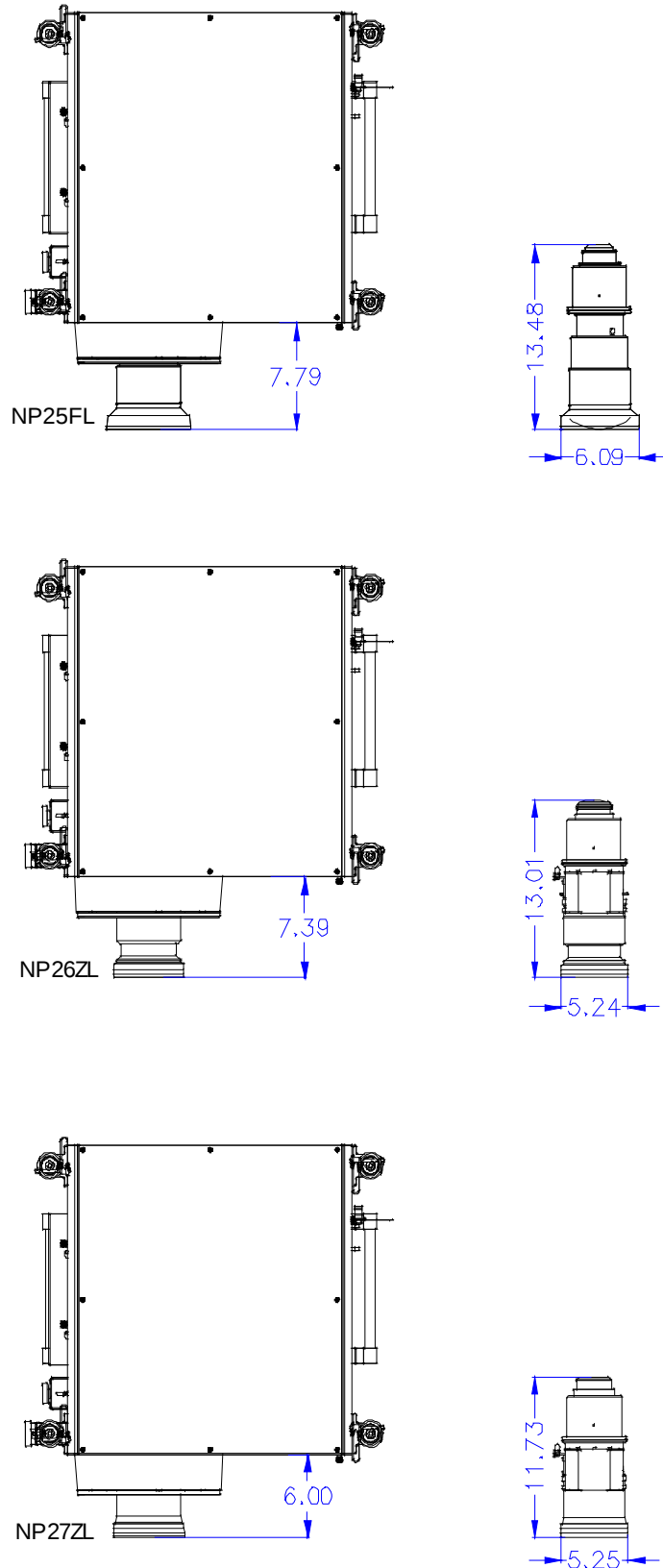


PH1000U Installation Guide

Desktop and Ceiling Mount

Rev 1.2

Optional Lens Dimensions

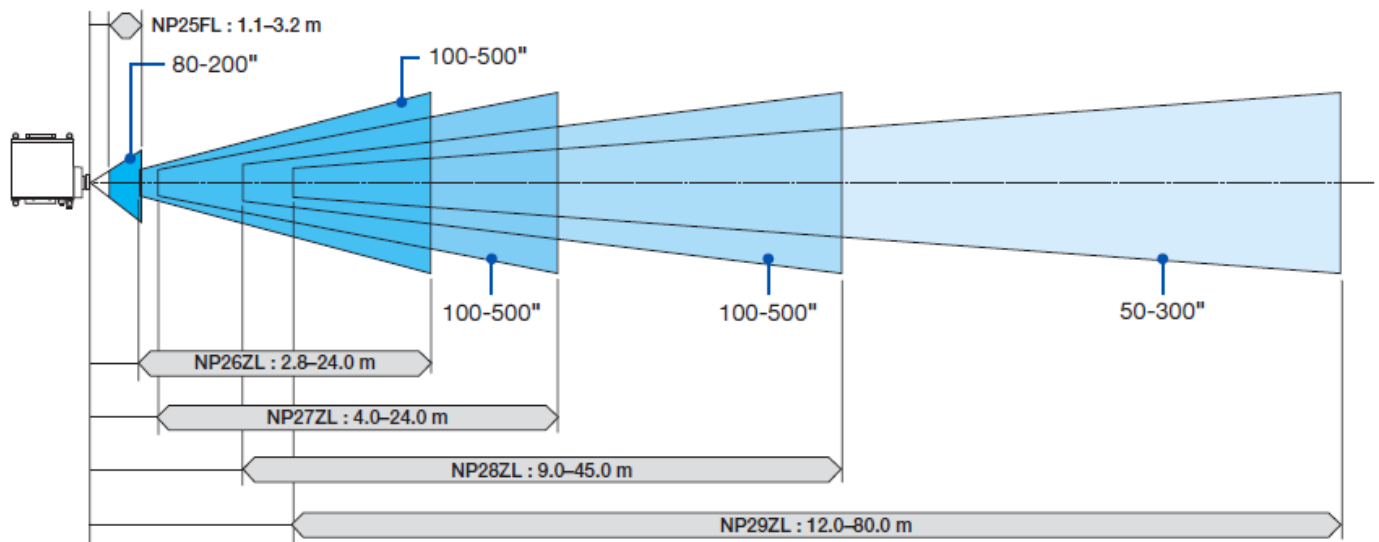
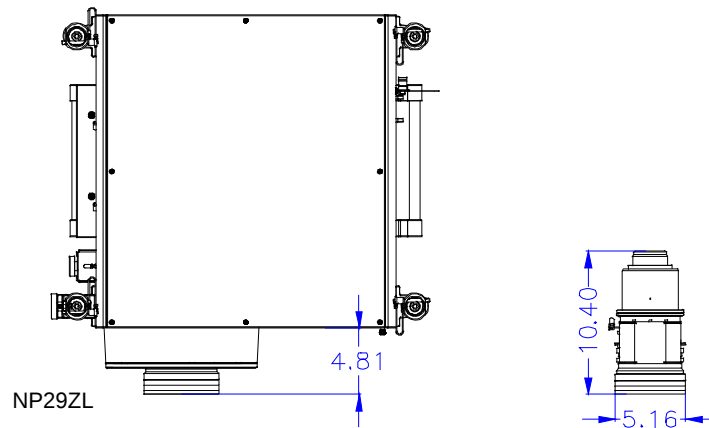
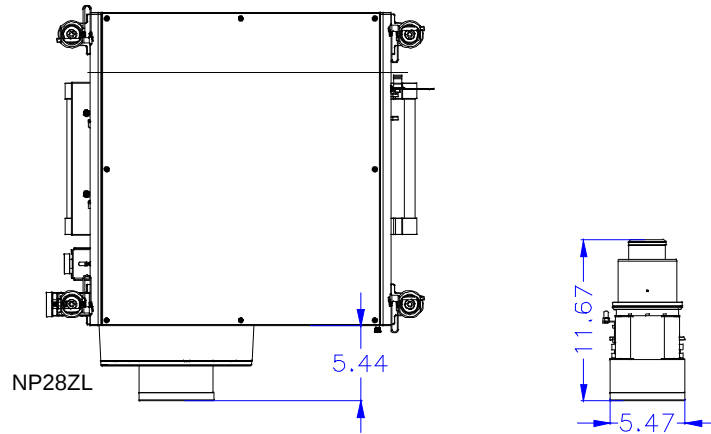


PH1000U Installation Guide

Desktop and Ceiling Mount

Rev 1.2

Optional Lens Dimensions (Continued)



PH1000U Installation Guide

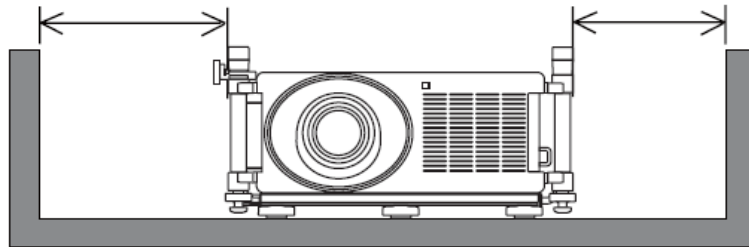
Desktop and Ceiling Mount

Rev 1.2

Ventilation Requirements

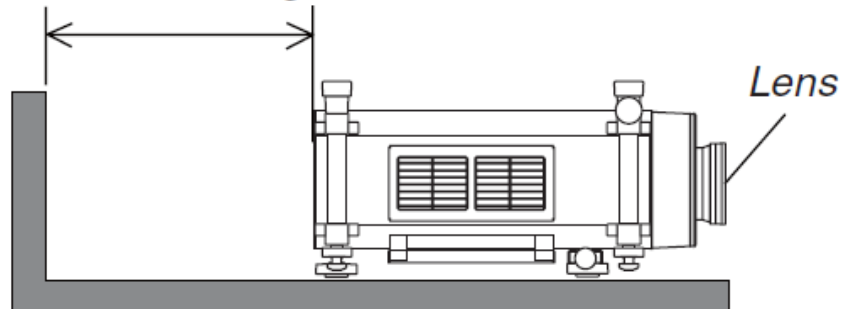
- If there are walls on both sides of the projector :

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

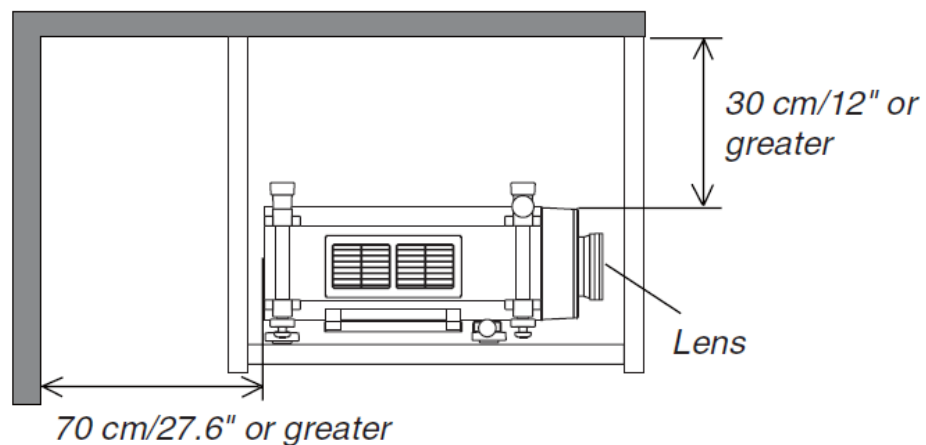


- If there's a wall behind the projector :

70 cm/27.6" or greater



- For ceiling mounting :



PH1000U Installation Guide

Desktop and Ceiling Mount

Rev 1.2

Input Panel



Button Panel



PH1000U Installation Guide

Desktop and Ceiling Mount

Rev 1.2

PC Control Codes

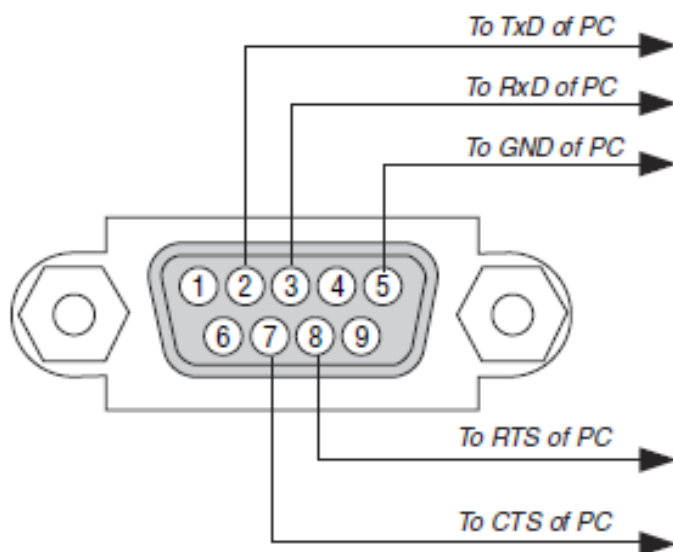
Function	Code Data					
POWER ON	02H	00H	00H	00H	00H	02H
POWER OFF	02H	01H	00H	00H	00H	03H
INPUT SELECT COMPUTER 1	02H	03H	00H	00H	02H	01H 01H 09H
INPUT SELECT COMPUTER 2	02H	03H	00H	00H	02H	01H 02H 0AH
INPUT SELECT COMPUTER 3	02H	03H	00H	00H	02H	01H 03H 0BH
INPUT SELECT HDMI	02H	03H	00H	00H	02H	01H 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.