

PH2601QL & PH3501QL Installation Guide

Desktop and Ceiling Mount

Rev 1.4

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Product Description

Type:	3 chip DMD Reflection Type 1.38 in. 2x LVDS DMD	Dimensions: 27.4"(W) x 17.9"(H) x 46.5"(D)
Resolution:	4096 x 2160 (17:9)	Weight: PH2601QL: 317.6 lbs. / 144kg PH3501QL: 372.6 lbs. / 169kg
Brightness:	PH2601QL: 30,000 Center Lumens, 26,000 ANSI PH3501QL: 40,000 Center Lumens, 35,000 ANSI	Fan Noise: 55 dB / 43dB @ 1 meter
Power Consumption:	PH2601QL: 3665W (max) PH3501QL: 4705W (max)	BTU's: PH2601QL: 12505 BTU/hour PH3501QL: 16054 BTU/hour

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

Lens Specifications

L2K-10F1:	Throw Ratio: 0.93:1 Screen Sizes: 100-1500"	Focal Length: 28.95mm F/#: 2.5	Weight: 15.0lbs. / 6.8kg
L4K-11ZM:	Throw Ratio: 1.24 – 1.73:1 Screen Sizes: 100-1500"	Focal Length: 38.5 – 53.7mm F/#: 2.5	Weight: 19.0lbs. / 8.6kg
L4K-15ZM:	Throw Ratio: 1.52 – 2.10:1 Screen Sizes: 100-1500"	Focal Length: 47.5 – 65.6mm F/#: 2.5	Weight: 17.0lbs. / 7.7kg
L4K-20ZM:	Throw Ratio: 1.98 – 3.34:1 Screen Sizes: 100-1500"	Focal Length: 61.4 – 105.2mm F/#: 2.5	Weight: 19.6lbs. / 8.9kg
L2K-30ZM:	Throw Ratio: 2.71 – 3.92:1 Screen Sizes: 100-1500"	Focal Length: 85.0 – 121.6mm F/#: 2.5	Weight: 15.4lbs. / 7.0kg
L2K-43ZM1:	Throw Ratio: 3.91 – 5.52:1 Screen Sizes: 100-1500"	Focal Length: 122.8 – 172.3mm F/#: 2.5	Weight: 15.7lbs. / 7.1kg
L2K-55ZM1:	Throw Ratio: 4.99 – 7.82:1 Screen Sizes: 100-1500"	Focal Length: 156.5 – 243.1mm F/#: 2.5	Weight: 16.8lbs. / 6.6kg

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%.

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Formulas: 17:9 Aspect Ratio (4K = 4096x2160)

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:

- L2K-10F1:** C(Wide) = 0.975W – 3.795
- L4K-11ZM:** C(Wide) = 1.251W – 4.331 ----- C(Tele) = 1.737W – 4.843
- L4K-15ZM:** C(Wide) = 1.537W – 4.307 ----- C(Tele) = 2.115W – 5.906
- L4K-20ZM:** C(Wide) = 1.960W + 9.843 ----- C(Tele) = 3.322W + 10.465
- L2K-30ZM:** C(Wide) = 2.735W + 8.744 ----- C(Tele) = 3.955W + 11.760
- L2K-43ZM1:** C(Wide) = 3.937W - 11.327 ----- C(Tele) = 5.554W – 15.060
- L2K-55ZM1:** C(Wide) = 5.028W - 12.866 ----- C(Tele) = 7.865W – 16.996

Definitions:

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

17:9 Screen Formulas

- W = H x 17/9
- H = W x 9/17
- Screen Diagonal = W x 19.231/17

Distance Chart for popular 17:9 Screens (4K = 4096x2160)

Screen Size (17:9)			Zoom Lenses							
			L2K-10F1	L4K-11ZM	L4K-15ZM	L4K-20ZM	L2K-30ZM	L2K-43ZM1	L2K-55ZM1	
Diagonal	Width(W)	Height (H)	0.93:1	1.24-1.73:1	1.52-2.10:1	1.98-3.34:1	2.71-3.92:1	3.91-5.52:1	4.99-7.82:1	
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	
110	97	51	91.0 - N/A	117.3 - 164.1	145.1 - 199.8	200.4 - 333.5	274.7 - 396.34	371.5 - 525	476.1 - 747.79	
131	115	61	108.6 - N/A	139.9 - 195.4	172.9 - 237.9	235.8 - 393.4	306.5 - 467.63	442.5 - 625.11	566.7 - 889.55	
161	142	75	134.3 - N/A	172.9 - 241.2	213.4 - 293.7	287.5 - 481.1	378.7 - 572.02	546.4 - 771.72	699.4 - 1097.2	
192	169	89	160.9 - N/A	207.0 - 288.6	255.3 - 351.4	341.0 - 571.7	453.3 - 679.9	653.8 - 923.21	836.5 - 1311.7	
226	199	105	190.1 - N/A	244.4 - 340.6	301.3 - 414.7	399.6 - 671.0	535.1 - 798.22	771.5 - 1089.4	987.0 - 1547	
259	228	121	218.4 - N/A	280.8 - 391.0	346.0 - 476.1	456.5 - 767.5	614.5 - 913.05	885.9 - 1250.6	1132.9 - 1775.3	
292	257	136	246.7 - N/A	317.1 - 441.4	390.6 - 537.5	513.4 - 864.0	693.9 - 1027.9	1000.2 - 1411.9	1278.9 - 2003.7	
324	285	151	274.2 - N/A	352.3 - 490.3	433.9 - 597.0	568.6 - 957.5	770.9 - 1139.2	1111.0 - 1568.3	1420.5 - 2225.1	
400	352	186	339.4 - N/A	436.0 - 606.5	536.6 - 738.5	699.7 - 1179.6	953.8 - 1403.7	1374.3 - 1939.7	1756.7 - 2751.1	
500	440	233	425.1 - N/A	546.0 - 759.3	671.9 - 924.6	872.1 - 1471.9	1194.5 - 1751.7	1720.7 - 2428.3	2199.1 - 3443.1	
1431	1259	667	1223.8 - N/A	1570.8 - 2182.2	1930.9 - 2657.1	2477.7 - 4193.2	3434.9 - 4991.5	4945.7 - 6978	6317.9 - 9885.8	
1500	1320	699	1283.0 - N/A	1646.7 - 2287.7	2024.2 - 2785.5	2596.7 - 4394.9	3600.9 - 5231.6	5184.8 - 7315.2	6623.1 - 10363	

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Formulas: 16:9 Aspect Ratio (UHD = 3840x2160)

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:

- L2K-10F1:** C(Wide) = 0.999W – 3.988
- L4K-11ZM:** C(Wide) = 1.343W – 4.327 ----- C(Tele) = 1.854W – 3.937
- L4K-15ZM:** C(Wide) = 1.632W – 4.382 ----- C(Tele) = 2.257W – 3.488
- L4K-20ZM:** C(Wide) = 2.089W + 10.012 ----- C(Tele) = 3.550W + 10.488
- L2K-30ZM:** C(Wide) = 2.917W - 9.189 ----- C(Tele) = 4.219W - 12.358
- L2K-43ZM1:** C(Wide) = 4.201W - 11.906 ----- C(Tele) = 5.929W – 15.831
- L2K-55ZM1:** C(Wide) = 5.363W - 13.520 ----- C(Tele) = 8.393W – 17.862

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
- Screen Diagonal = W x 18.378/16

Distance Chart for popular 16:9 Screens (UHD = 3840x2160)

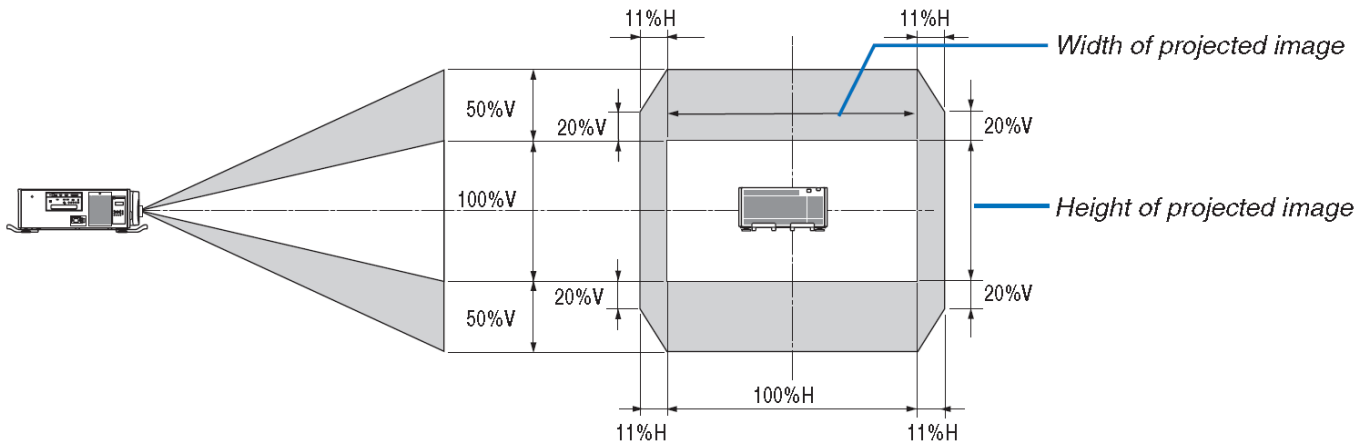
Screen Size (16:9)			Zoom Lenses							
			L2K-10F1	L4K-11ZM	L4K-15ZM	L4K-20ZM	L2K-30ZM	L2K-43ZM1	L2K-55ZM1	
Diagonal	Width(W)	Height (H)	0.93:1	1.24-1.73:1	1.52-2.10:1	1.98-3.34:1	2.71-3.92:1	3.91-5.52:1	4.99-7.82:1	
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	
110	96	54	91.7 - N/A	124.3 - 173.6	151.9 - 212.7	210.1 - 350.5	270.2 - 391.68	390.4 - 551.97	500.1 - 785.91	
131	114	64	109.9 - N/A	148.8 - 207.5	181.7 - 253.9	248.3 - 415.4	323.5 - 468.82	467.2 - 660.37	598.1 - 939.35	
161	140	79	136.0 - N/A	183.9 - 255.9	224.4 - 312.9	302.8 - 508.1	399.7 - 579.01	576.9 - 815.22	738.2 - 1158.6	
192	167	94	163.0 - N/A	220.2 - 306.0	268.4 - 373.8	359.2 - 603.9	478.4 - 692.87	690.3 - 975.24	882.9 - 1385.1	
226	197	111	192.6 - N/A	259.9 - 360.9	316.7 - 440.6	421.0 - 709.0	564.8 - 817.76	814.7 - 1150.7	1041.7 - 1633.5	
259	225	127	221.3 - N/A	298.5 - 414.1	363.6 - 505.4	481.1 - 811.0	648.6 - 938.97	935.4 - 1321.1	1195.8 - 1874.7	
292	254	143	250.0 - N/A	337.1 - 467.4	410.5 - 570.3	541.1 - 913.0	732.4 - 1060.2	1056.1 - 1491.4	1349.8 - 2115.8	
324	282	159	277.8 - N/A	374.5 - 519.0	456.0 - 633.2	599.3 - 1011.9	813.6 - 1177.7	1173.1 - 1656.6	1499.3 - 2349.6	
400	348	196	343.9 - N/A	463.4 - 641.7	563.9 - 782.5	737.5 - 1246.7	1006.6 - 1456.9	1451.1 - 2048.9	1854.1 - 2904.9	
500	435	245	430.9 - N/A	580.3 - 803.1	706.0 - 979.0	919.4 - 1555.8	1260.6 - 1824.2	1816.8 - 2565.1	2321.0 - 3635.6	
1362	1186	667	1180.6 - N/A	1588.2 - 2194.5	1930.8 - 2672.8	2487.1 - 4220.0	3449.7 - 4990.4	4969.5 - 7014.6	6345.7 - 9934.3	
1500	1306	735	1300.6 - N/A	1749.5 - 2417.2	2126.9 - 2943.9	2738.1 - 4646.5	3800.1 - 5497.3	5474.2 - 7726.9	6990.1 - 10943	

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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: 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)

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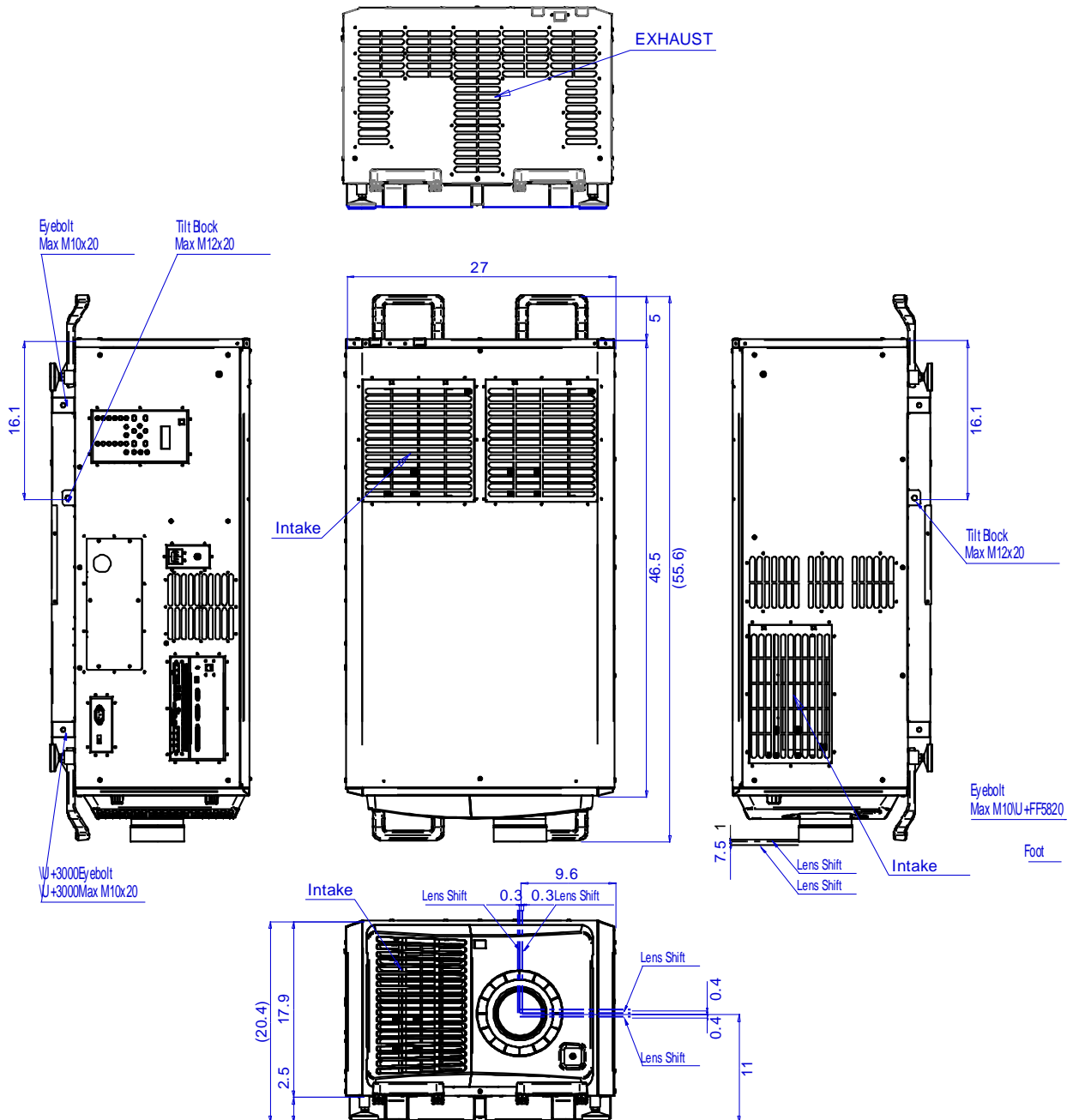
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Cabinet Dimensions

The following diagrams show the cabinet dimensions for the PH2601QL/PH3501QL.

Dimensions are in inches. For millimeters multiply by 25.4.

Note: Dimensions below shown without lens



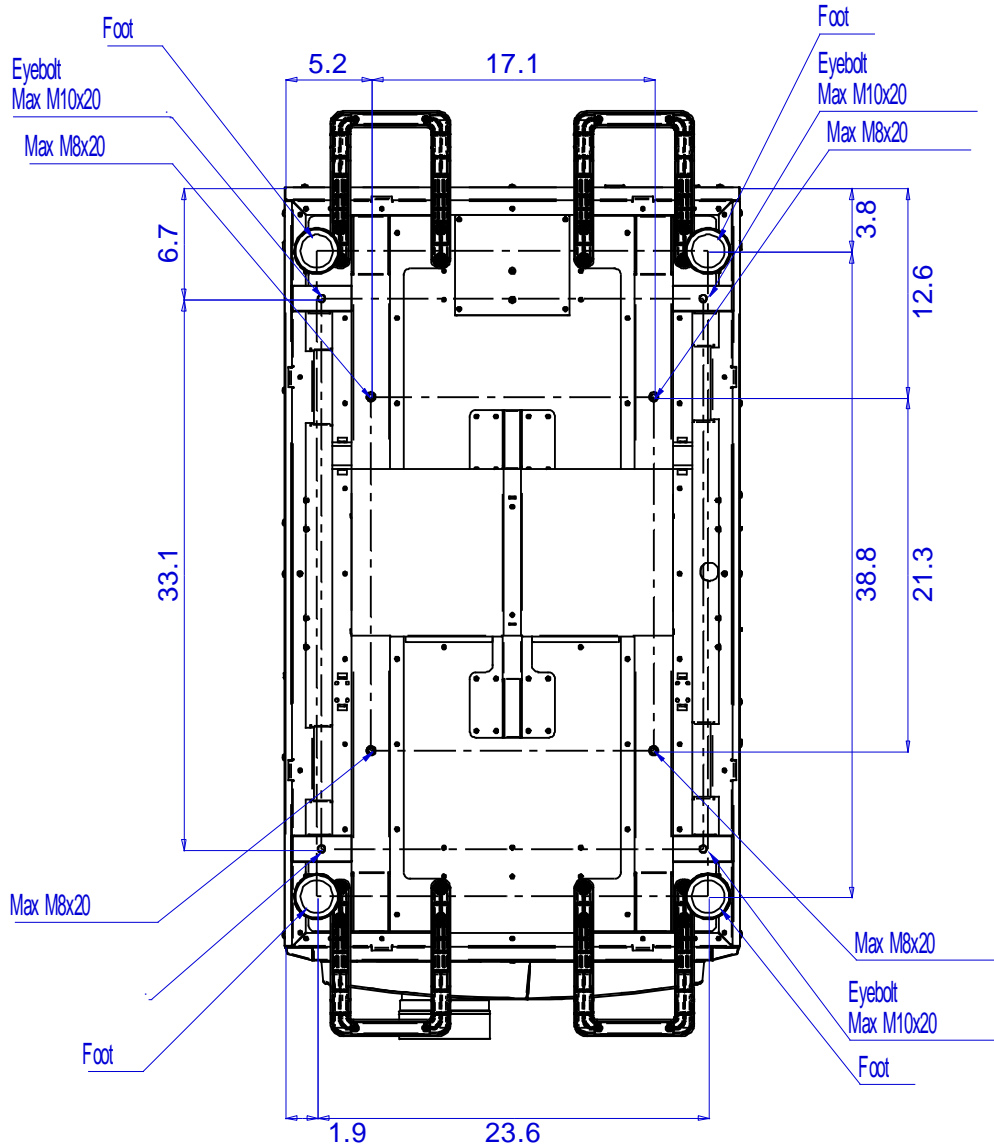
LENS	Optional Lens Protrusion	
	MAX (Tele Position)	MIN (Wide Position)
L2K-10F1	8.46"	8.13"
L4K-11ZM	8.85"	8.52"
L4K-15ZM	8.28"	7.95"
L4K-20ZM	7.32"	6.98"
L2K-30ZM	5.00"	4.67"
L2K-43ZM1	7.85"	7.52"
L2K-55ZM1	9.66"	9.33"

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Cabinet Dimensions

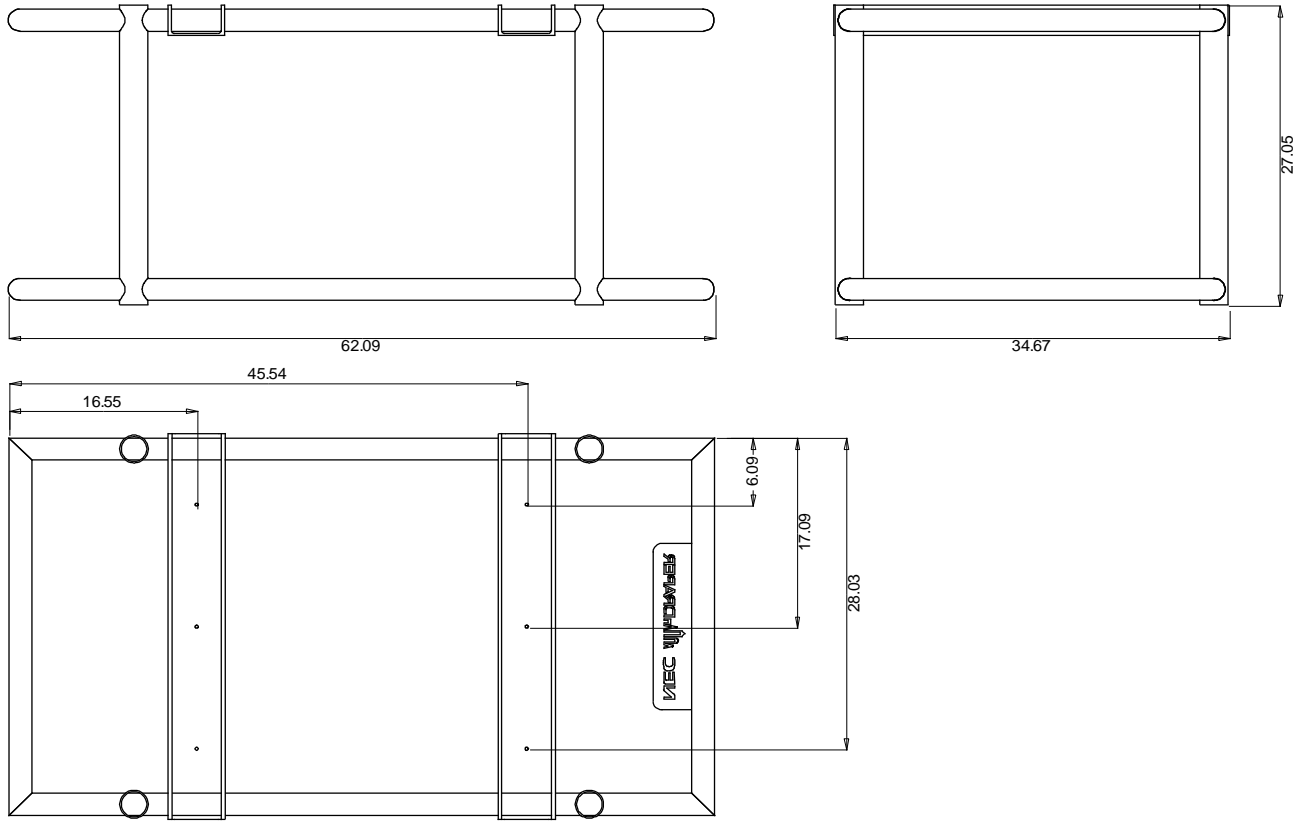


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Optional Fly Cage Dimensions (PH3501FC)



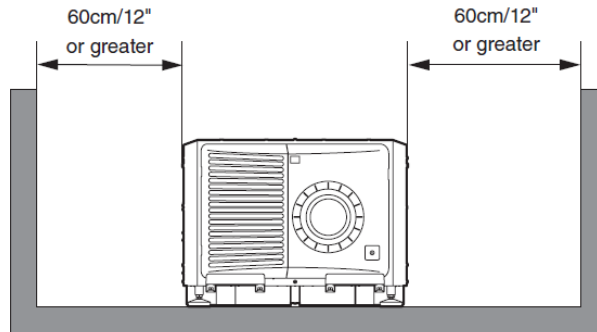
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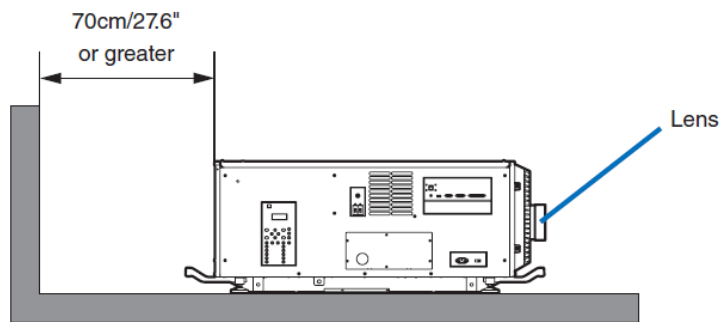
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Ventilation Requirements

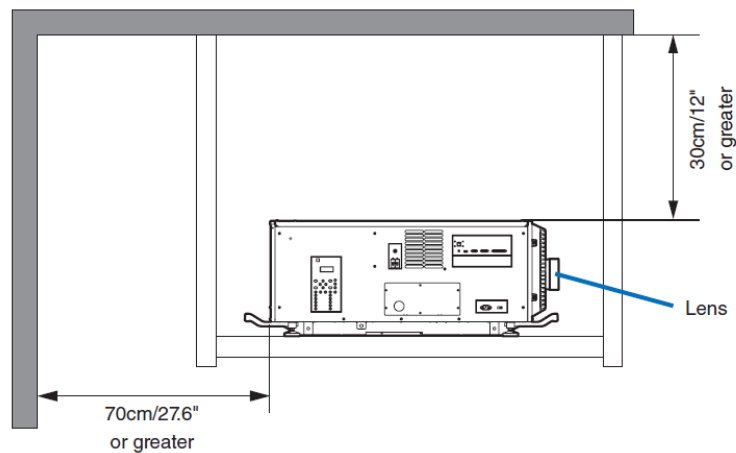
- If there are walls on both sides of the projector :



- If there's a wall behind the projector :



- For ceiling mounting :



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Regulatory Labels




RISK GROUP 3
WARNING
 DO NOT LOOK INTO THE BEAM.
 NO DIRECT EYE EXPOSURE TO THE BEAM IS PERMITTED.
 HAZARD DISTANCE: REFER TO THE MANUAL.

GROUPE DE RISQUE 3
AVERTISSEMENT
 NE PAS REGARDER DIRECTEMENT DANS LE FAISCEAU.
 L'EXPOSITION DIRECTE DES YEUX AU FAISCEAU EST INTERDITE.
 DISTANCE À RISQUE: SE REPORTER AU MANUEL.

RISIKOGRUPPE 3
WARNUNG
 SCHAUEN SIE NICHT IN DEN STRAHL.
 DIREKTER AUGENKONTAKT MIT DEM STRAHL IST NICHT ERLAUBT.
 SICHERHEITSABSTAND: SIEHE HANDBUCH.

ГРУППА РИСКА 3
ПРЕДУПРЕЖДЕНИЕ
 НЕ СМОТРИТЕ НА ЛУЧ.
 ЗАПРЕЩАЕТСЯ ЛЮБОЕ ПРЯМОЕ ВОЗДЕЙСТВИЕ ЛУЧА НА ГЛАЗА.
 ОПАСНОЕ РАССТОЯНИЕ: СМ. РУКОВОДСТВО ПО ЭКСПЛУАТАЦИИ.

リスクグループ 3
警告
 ビームを見ないこと。
 目へのビームの直接照射を禁止する。
 障害距離: 取扱説明書を参照。

위험 그룹 3
경고
 빔을 눈으로 보지 마십시오.
 빔을 직접 눈에 노출하는 것은 허용되지 않습니다.
 위험 거리: 설명서를 참조하십시오.

风险组别 3
警告
 请勿注视光束。
 不允许将眼睛暴露于光束中。
 有害距离: 请参阅手册。

IEC/EN 62471-5:2015



FOR NORTH AMERICA

RISK GROUP 3
WARNING
 HAZARDOUS OPTICAL RADIATION EMITTED FROM THIS PRODUCT.
 DO NOT LOOK AT OPERATING LIGHT SOURCE.
 EYE INJURY MAY RESULT.
 HAZARD DISTANCE: REFER TO THE MANUAL.
 NO DIRECT EXPOSURE TO BEAM SHALL BE PERMITTED.
 NOT FOR HOUSEHOLD USE.

GROUPE DE RISQUE 3
AVERTISSEMENT
 RADIATIONS OPTIQUES DANGEREUSES EMISES PAR CE PRODUIT.
 NE REGARDEZ PAS DIRECTEMENT LA SOURCE LUMINEUSE.
 CELA POURRAIT ENTRAÎNER DES BLESSURES AUX YEUX.
 DISTANCE À RISQUE: SE REPORTER AU MANUEL.
 L'EXPOSITION DIRECTE AU RAYON DOIT ÊTRE AUTORISÉE.
 NE CONVIENT PAS À UN USAGE DOMESTIQUE.

IEC/TR 62471-2:2009
 IEC/EN 62471:2006



CLASS 1 LASER PRODUCT
LASERPRODUKT DER KLASSE 1
PRODUIT LASER DE CLASSE 1
ЛАЗЕРНОЕ ИЗДЕЛИЕ 1 КЛАССА ОПАСНОСТИ

1 类激光产品
 등급 1 레이저 제품
 IEC 60825-1:2014

激光辐射
 避免眼睛受到直接照射
 4 类激光产品
 波长: 红色 632-642 nm
 蓝色 450-470 nm
 最大输出: 红色 750 mW
 蓝色 450 mW
 GB 7247.1-2012

クラス 1 レーザ製品
 JIS C 6802:2014






LASER APERTURE
OUVERTURE LASER

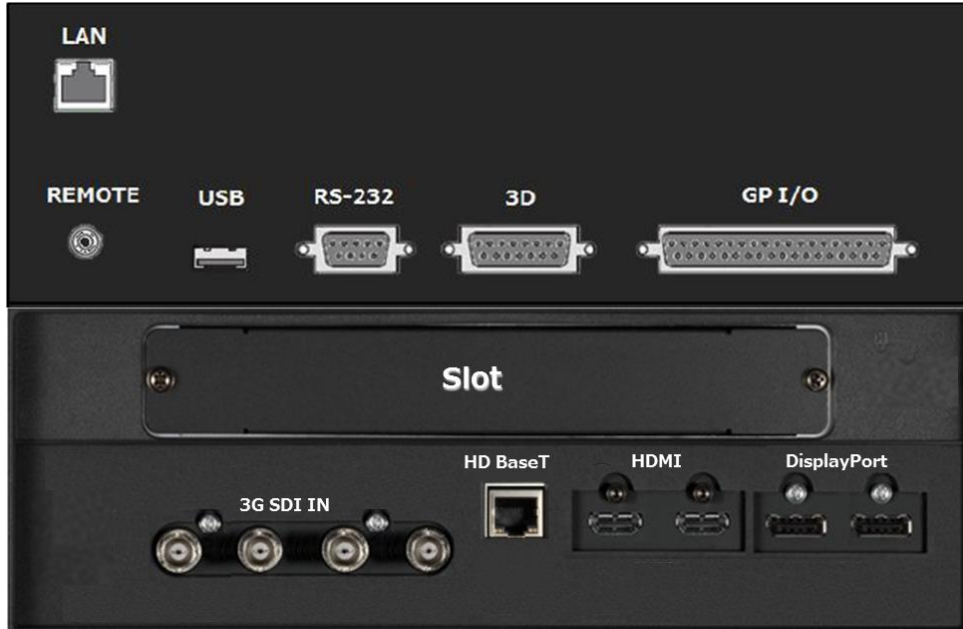
24L81751

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Input Panel



Button Panel



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PC Control Codes

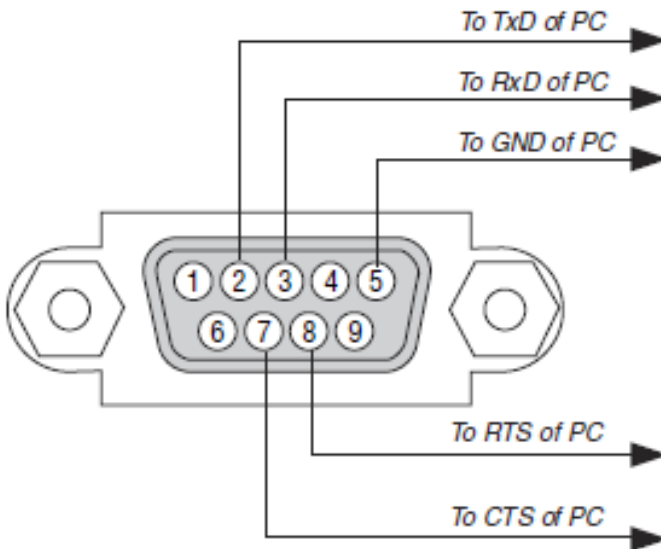
Function	Code Data
POWER ON	02H 00H 00H 00H 00H 02H
POWER OFF	02H 01H 00H 00H 00H 03H
INPUT SELECT HDBaseT	02H 03H 00H 00H 02H 01H 20H 28H
INPUT SELECT HDMI	02H 03H 00H 00H 02H 01H A1H A9H
INPUT SELECT DisplayPort	02H 03H 00H 00H 02H 01H A6H AEH
INPUT SELECT SLOT	02H 03H 00H 00H 02H 01H ABH B3H
PICTURE 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.