

PX1005QL Installation Guide

Desktop and Ceiling Mount

Rev 1.6

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Product Description

Type:	1 chip DMD Reflection Type 0.66 in. TRP DMD	Dimensions: 19.7" (W) x 8.49" (H) x 23.0" (D) Weight: 68.8 lbs. / 31.2kg
DMD Resolution:	2716 x 1528 (16:9) WQXGA	Brightness: 10,000 Lumens
Output Resolution:	3840 x 2160 (16:9) UHD	
Fan Noise:	42 dB / 39dB @ 1 meter	
Power Consumption:	1222W (max)	BTU's: 4166 BTU/hour

Network Ready, RJ45
Powered: Lens Shift, Horizontal & Vertical /Zoom/ Focus

Lens Specifications

NP39ML-4K: Throw Ratio: ~ 0.38:1 Screen Sizes: 85"-350"	Focal Length: 11.4mm F/#: 1.85	Weight: 6.0lbs. / 2.7kg
NP16FL-4K: Throw Ratio: ~ 0.76:1 Screen Sizes: 50"-300"	Focal Length: 11.6mm F/#: 1.85	Weight: 3.3lbs. / 1.5kg
NP17ZL-4K: Throw Ratio: 1.24 - 1.78:1 Screen Sizes: 50"-300"	Focal Length: 18.7 - 26.5mm F/#: 1.85	Weight: 2.0lbs. / 0.9kg
NP18ZL-4K: Throw Ratio: 1.71 - 2.25:1 Screen Sizes: 50"-300"	Focal Length: 26.0 - 34.0mm F/#: 1.70-1.90	Weight: 2.4lbs. / 1.1kg
NP19ZL-4K: Throw Ratio: 2.20 - 3.67:1 Screen Sizes: 50"-300"	Focal Length: 32.9 - 54.2mm F/#: 1.86 - 2.48	Weight: 1.9lbs. / 0.84kg
NP20ZL-4K: Throw Ratio: 3.54 - 5.36:1 Screen Sizes: 50"-300"	Focal Length: 52.8 - 79.1mm F/#: 1.85-2.41	Weight: 2.2lbs. / 1.0kg
NP21ZL-4K: Throw Ratio: 5.25 - 8.28:1 Screen Sizes: 50"-300"	Focal Length: 78.5 - 121.9mm F/#: 1.85-2.48	Weight: 2.2lbs. / 1.0kg
NP31ZL-4K: Throw Ratio: 0.74 - 0.93:1 Screen Sizes: 50"-300"	Focal Length: 11.3 - 14.1mm F/#: 1.96-2.3	Weight: 3.1lbs. / 1.4kg

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 $\pm 5\%$.

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Formulas: 16:9 Aspect Ratio (UHD)

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:

NP16FL-4K:	$C = 0.794W - 1.85$
NP17ZL-4K:	$C(\text{Wide}) = 1.269W - 2.091$ ----- $C(\text{Tele}) = 1.802W - 1.910$
NP18ZL-4K:	$C(\text{Wide}) = 1.748W - 2.673$ ----- $C(\text{Tele}) = 2.290W - 2.633$
NP19ZL-4K:	$C(\text{Wide}) = 2.241W - 3.150$ ----- $C(\text{Tele}) = 3.713W - 3.114$
NP20ZL-4K:	$C(\text{Wide}) = 3.618W - 5.319$ ----- $C(\text{Tele}) = 5.434W - 5.299$
NP21ZL-4K:	$C(\text{Wide}) = 5.412W - 11.622$ ---- $C(\text{Tele}) = 8.438W - 11.531$
NP31ZL-4K:	$C(\text{Wide}) = 0.768W - 1.795$ ----- $C(\text{Tele}) = 0.953W - 1.705$
NP39ML-4K:	Ultra-Short Throw lens (See page 3 for Formulas)

Definitions:

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

16:9 Screen Formulas

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

Distance Chart

Screen Size (16:9)			Rear Lens	Zoom Lenses							
Diagonal	Width(W)	Height (H)	NP16FL-4K	NP31ZL-4K	NP17ZL-4K	NP18ZL-4K	NP19ZL-4K	NP20ZL-4K	NP21ZL-4K		
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches
30	26	15	18.9	18.3 - 23.2	31.1 - 45.2	43.0 - 57.2	55.4 - 94.0	89.3 - 136.8	129.9 - 209.1		
59	51	29	39.0	37.7 - 47.3	63.2 - 90.8	87.2 - 115.1	112.1 - 187.8	180.7 - 274.1	266.7 - 422.4		
67	58	33	44.5	43.1 - 53.9	72.0 - 103.3	99.4 - 131.1	127.7 - 213.7	206.0 - 312.0	304.4 - 481.2		
70	61	34	46.6	45.1 - 56.4	75.3 - 108.0	104.0 - 137.1	133.6 - 223.4	215.4 - 326.2	318.6 - 503.3		
83	72	41	55.6	53.8 - 67.2	89.7 - 128.4	123.8 - 163.0	159.0 - 265.5	256.4 - 387.8	379.9 - 598.9		
106	92	52	71.5	69.2 - 86.3	115.1 - 164.6	158.8 - 208.9	203.9 - 339.9	328.9 - 496.7	488.4 - 768.0		
110	96	54	74.3	71.8 - 89.7	119.6 - 170.8	164.9 - 216.9	211.7 - 352.9	341.5 - 515.7	507.2 - 797.4		
126	110	62	85.3	82.5 - 102.9	137.3 - 196.0	189.3 - 248.8	242.9 - 404.6	392.0 - 591.4	582.7 - 915.1		
133	116	65	90.2	87.2 - 108.8	145.0 - 207.0	199.9 - 262.8	256.6 - 427.3	414.1 - 624.6	615.7 - 966.6		
159	139	78	108.2	104.6 - 130.4	173.8 - 247.8	239.6 - 314.7	307.4 - 511.4	496.1 - 747.7	738.4 - 1157.8		
184	160	90	125.5	121.4 - 151.1	201.4 - 287.1	277.6 - 364.6	356.2 - 592.3	574.9 - 866.1	856.3 - 1341.6		
202	176	99	137.9	133.4 - 166.1	221.3 - 315.3	305.1 - 400.5	391.4 - 650.6	631.6 - 951.4	941.2 - 1474.0		
220	192	108	150.4	145.5 - 181.0	241.2 - 343.6	332.5 - 436.5	426.5 - 708.8	688.4 - 1036.6	1026.1 - 1606.4		
263	229	129	180.1	174.2 - 216.7	288.8 - 411.1	398.0 - 522.3	510.5 - 848.0	824.0 - 1240.3	1228.9 - 1922.6		
299	261	147	205.1	198.3 - 246.6	328.6 - 467.7	452.8 - 594.1	580.8 - 964.5	937.5 - 1410.8	1398.7 - 2187.4		

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Formulas: 16:9 Aspect Ratio (UHD)

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:

NP39ML-4K: $A = (0.348 * W) - 30.6$
 $B = 0.588 * W$
 $C = (0.348 * W) + 2.488$
 $D = (0.284 * W) - 2.262$
 $E = (0.284 * W) + 5.738$

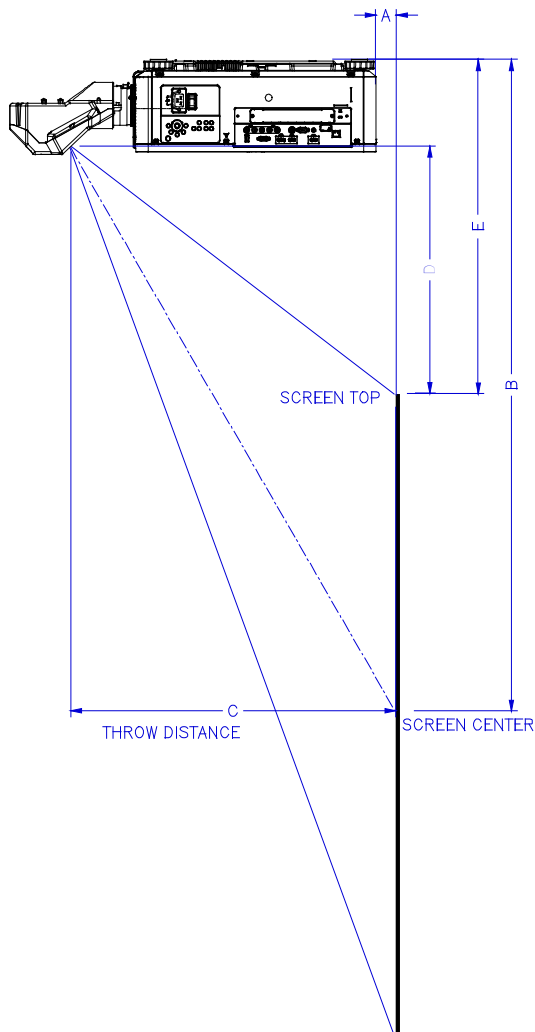
Definitions:

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

16:9 Screen Formulas

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

NP39ML-4 Installation



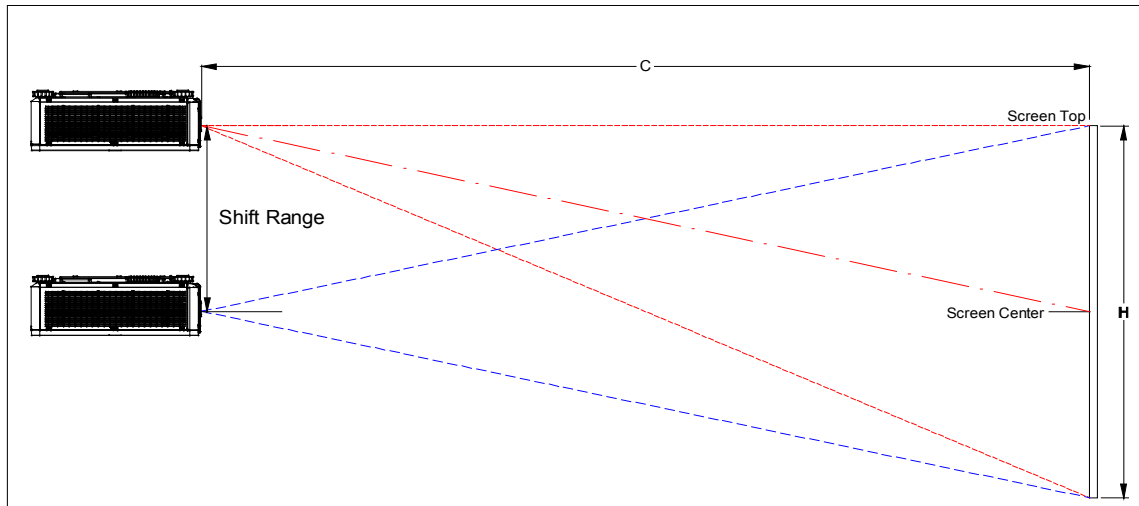
Screen Size (16:9)			A	B	C	D	E
Diagonal	Width(W)	Height (H)					
inches	inches	inches	inches	inches	inches	inches	inches
107	93	52	2	55	35	24.2	32.2
113	98	55	4	58	37	25.7	33.7
130	113	64	9	67	42	29.9	37.9
137	119	67	11	70	44	31.6	39.6
164	143	80	19	84	52	38.3	46.3
189	165	93	27	97	60	44.5	52.5
208	181	102	32	107	66	49.2	57.2
226	197	111	38	116	71	53.7	61.7
270	235	132	51	138	84	64.6	72.6
300	261	147	60	154	93	72.0	80.0
350	305	172	76	179	109	84.4	92.4

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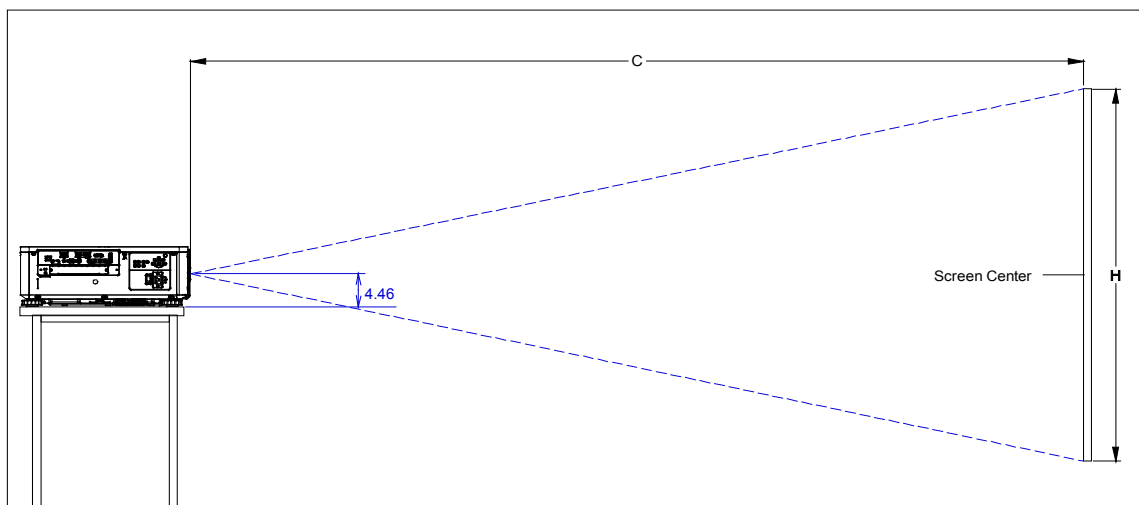
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Ceiling Mount Installation



Note: Lens Shift Feature is not available for the NP16F-4KL. This lens should only be used for “zero degree”/“no-offset” applications.

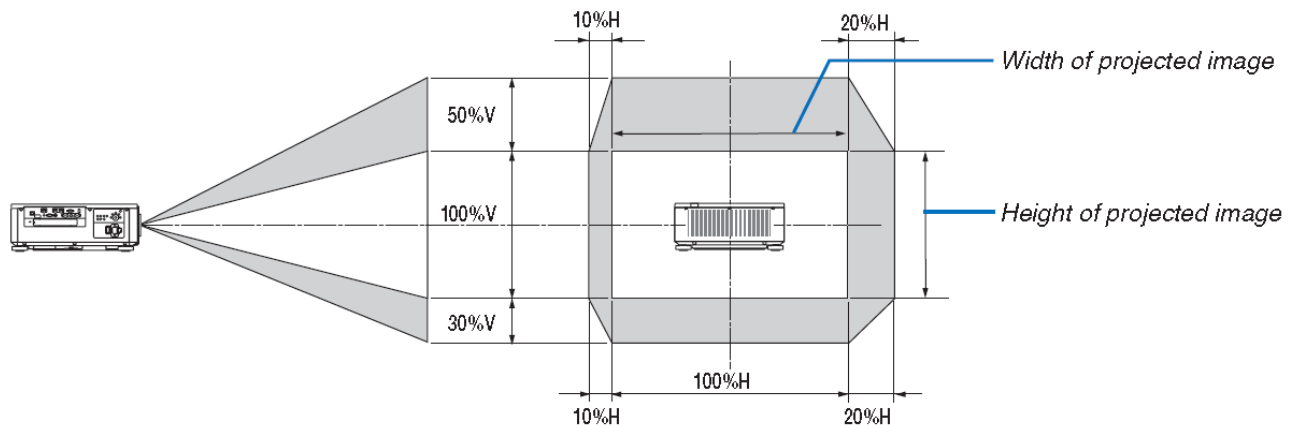


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Lens Shift Adjustable Range



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 NP16FL-4K (rear lens). NP16FL-4K 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)

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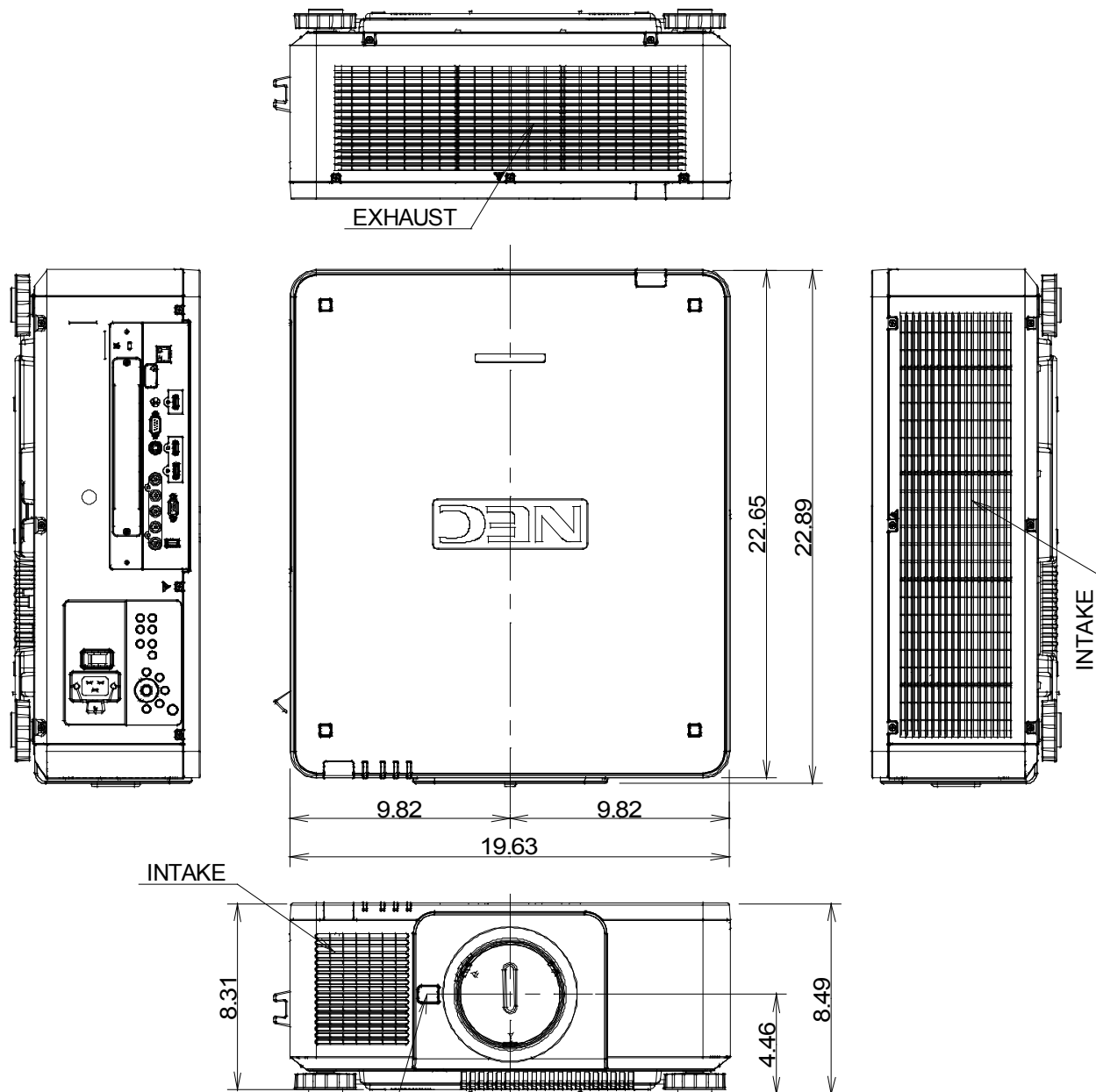
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Cabinet Dimensions

The following diagrams show the cabinet dimensions for the PX1005QL.

Dimensions are in inches. For millimeters multiply by 25.4.

Note: Dimensions below shown without a lens





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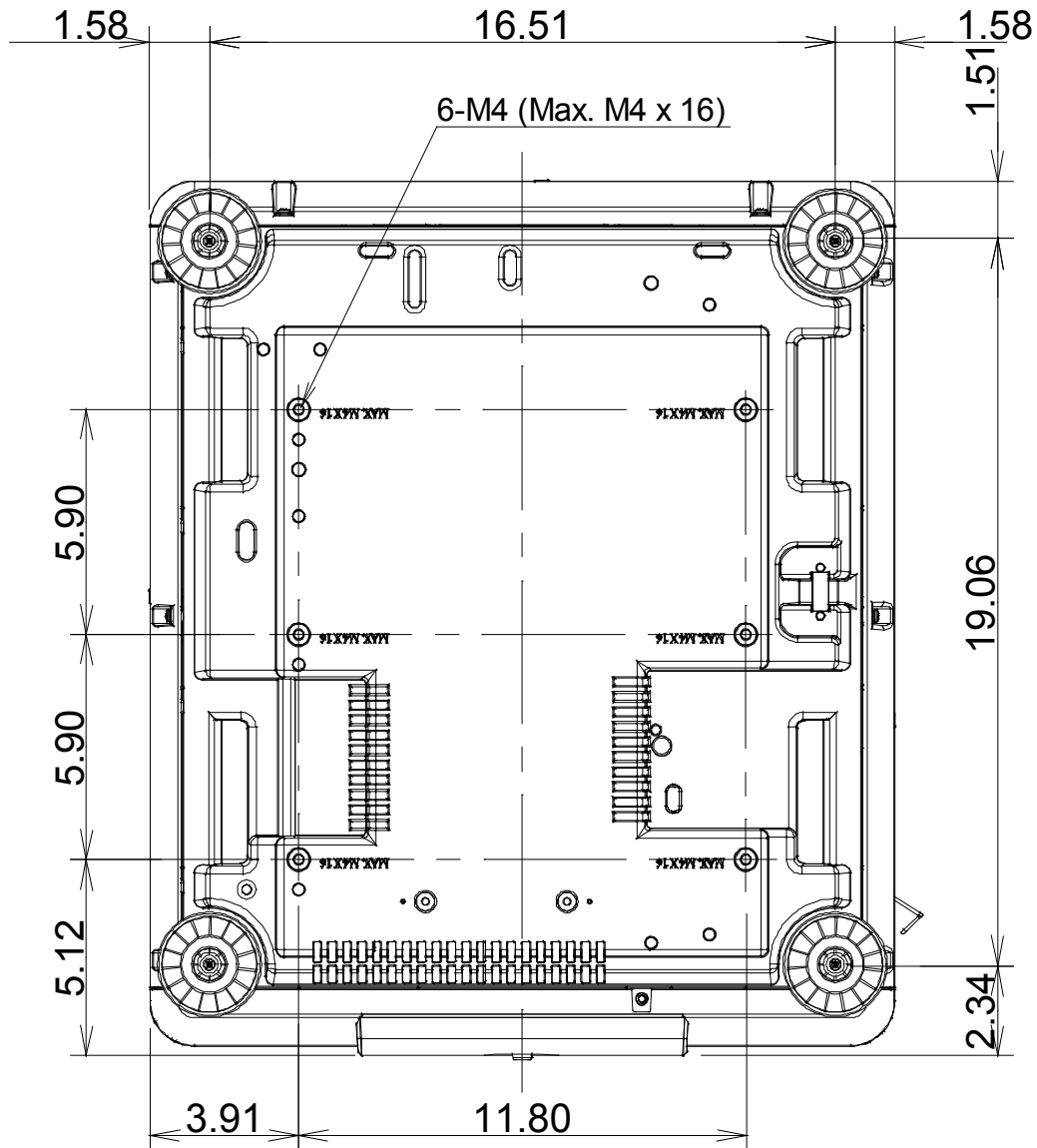
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Cabinet Dimensions

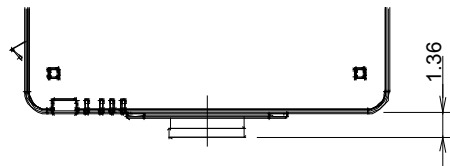
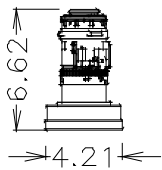


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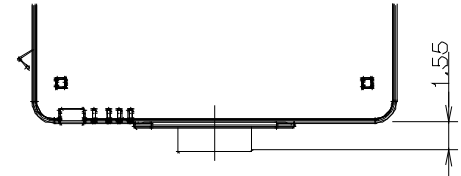
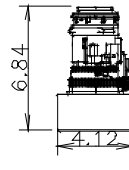
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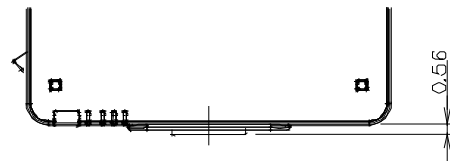
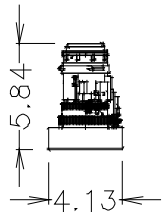
Optional Lens Dimensions



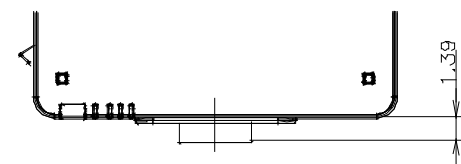
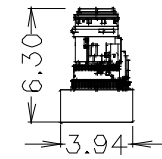
NP16FL-4K



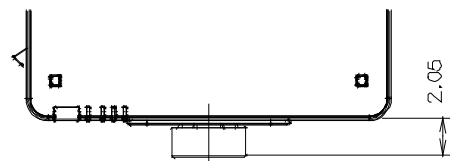
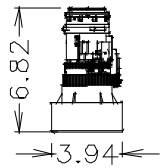
NP17ZL-4K



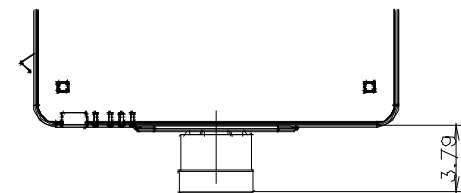
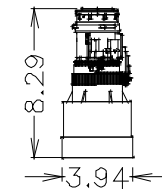
NP18ZL-4K



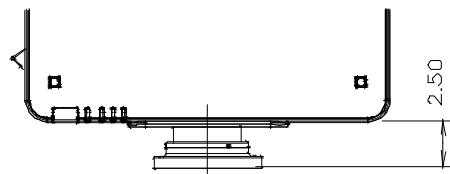
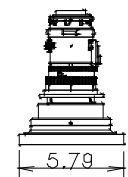
NP19ZL-4K



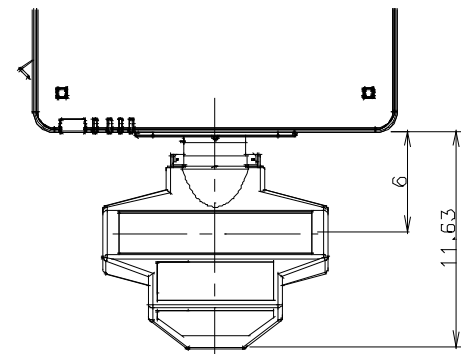
NP20ZL-4K



NP21ZL-4K



NP31ZL-4K



NP39ML-4K

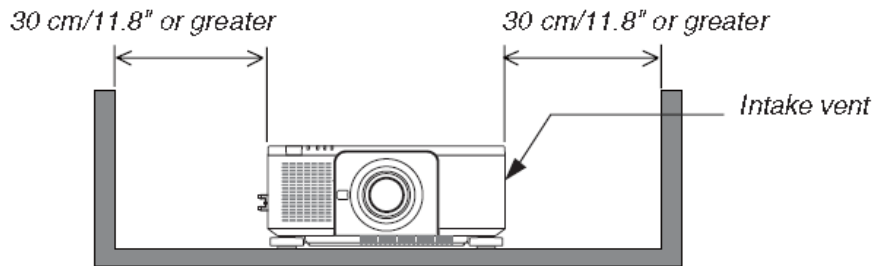
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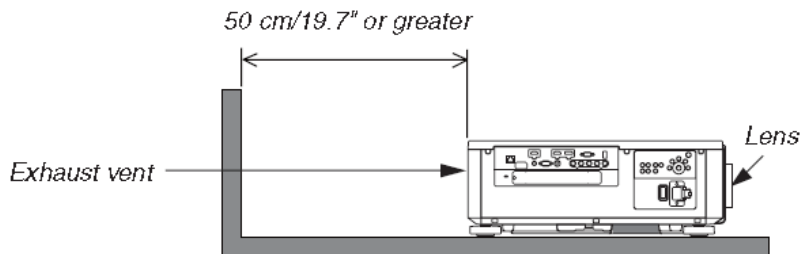
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Ventilation Requirements

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



- If there's a wall behind the projector :

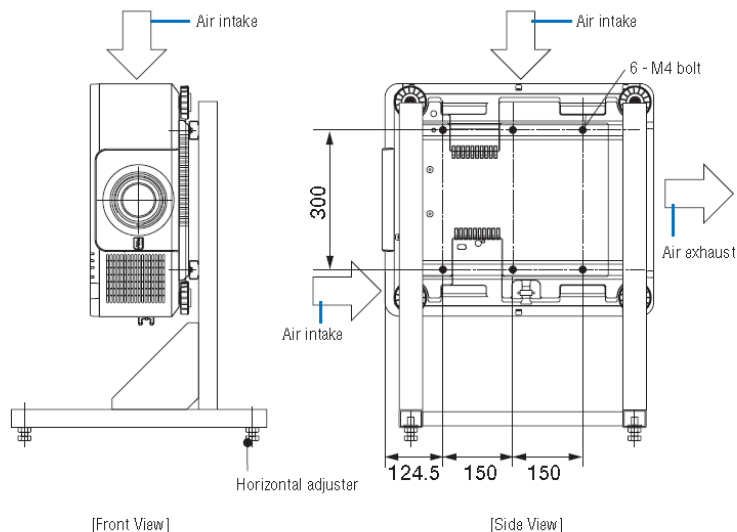


Portrait Requirements

Reference drawings

* The drawing showing the dimensional requirements is not an actual stand design drawing.

(Unit: mm)



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Regulatory Labels

	CAUTION POSSIBLY HAZARDOUS OPTICAL RADIATION EMITTED FROM THIS PRODUCT. DO NOT STARE AT OPERATING LAMP. MAY BE HARMFUL TO THE EYES. RISK GROUP 2 IEC 62471:2006	VORSICHT Dieses Produkt strahlt eventuelle gefährliche optische Strahlung aus. Schauen Sie nicht in die eingeschaltete Lampe. Dies kann Ihre Augen gefährden. RISIKOGRUPPE 2 IEC 62471:2006	MISE EN GARDE Rayonnement optique éventuellement dangereux émis par ce produit. Ne regardez pas fixement la lampe de fonctionnement. Cela peut être dangereux pour les yeux. GROUPE À RISQUE 2 IEC 62471:2006
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**COMPLIES WITH 21 CFR 1040.10
 AND 1040.11 EXCEPT FOR DEVIATIONS
 PURSUANT TO LASER NOTICE No. 50,
 DATED JUNE 24, 2007**

LASER RADIATION
 AVOID DIRECT EYE EXPOSURE
 CLASS 3R LASER PRODUCT
 WAVE LENGTH: 450-460 nm
 MAX. PULSE ENERGY: 0.376mJ
 PULSE DURATION: 0.74 ms
 IEC/EN 60825-1:2007
 CLASS 1 LASER PRODUCT
 IEC/EN 60825-1:2014

레이저 방사선
 육안으로 쳐다보지 말 것
 등급 3R 레이저 제품
 파장: 450-460nm
 최대 펄스 에너지: 0.376mJ
 펄스 지속 시간: 0.74ms
 IEC/EN 60825-1:2007
 등급 1 레이저 제품
 IEC/EN 60825-1:2014

LASERSTRAHLUNG
 DIREKTE EXPOSITION DER AUGEN VERMEIDEN
 LASERPRODUKT DER KLASSE 3R
 WELLENLÄNGE: 450-460 nm
 MAX. PULSENERGIE: 0,376 mJ
 IMPULSDAUER: 0,74 ms
 IEC/EN 60825-1:2007
 LASERPRODUKT DER KLASSE 1
 IEC/EN 60825-1:2014

RAYONNEMENT LASER
 ÉVITER D'EXPOSER DIRECTEMENT LES YEUX
 PRODUIT LASER DE CLASSE 3R
 LONGUEUR D'ONDE : 450-460 nm
 ÉNERGIE D'IMPULSION MAX. : 0,376 mJ
 DURÉE DE L'IMPULSION : 0,74 ms
 IEC/EN 60825-1:2007
 PRODUIT LASER DE CLASSE 1
 IEC/EN 60825-1:2014

ЛАЗЕРНОЕ ИЗЛУЧЕНИЕ
 ИЗБЕГАЙТЕ ПРЯМОГО ВОЗДЕЙСТВИЯ НА ГЛАЗА
 ЛАЗЕРНОЕ ИЗДЕЛИЕ 3R КЛАССА ОПАСНОСТИ
 ДЛИНА ВОЛНЫ: 450-460 нм
 МАКС. ЭНЕРГИЯ ИМПУЛЬСА: 0,376 мДж
 ДЛИТЕЛЬНОСТЬ ИМПУЛЬСА: 0,74 мс
 IEC/EN 60825-1:2007
 ЛАЗЕРНОЕ ИЗДЕЛИЕ 1 КЛАССА ОПАСНОСТИ
 IEC/EN 60825-1:2014

LASER APERTURE
LASERÖFFNUNG
OUVERTURE LASER
АПЕРТУРА ЛАЗЕРА
레이저 개구부

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Input Panel



Control Panel



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PC Control Codes

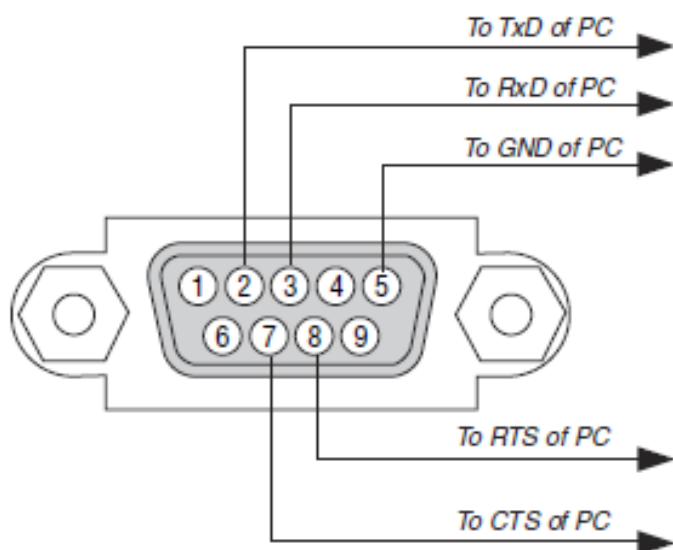
Function	Code Data							
POWER ON	02H	00H	00H	00H	00H	02H		
POWER OFF	02H	01H	00H	00H	00H	03H		
INPUT SELECT HDMI 1	02H	03H	00H	00H	02H	01H	A1H	A9H
INPUT SELECT HDMI 2	02H	03H	00H	00H	02H	01H	A2H	AAH
INPUT SELECT DisplayPort 1	02H	03H	00H	00H	02H	01H	A6H	AEH
INPUT SELECT DisplayPort 2	02H	03H	00H	00H	02H	01H	A7H	AFH
INPUT SELECT HDBaseT	02H	03H	00H	00H	02H	01H	20H	28H
INPUT 3G SDI1	02H	03H	00H	00H	02H	01H	C4H	CCH
INPUT 3G SDI2	02H	03H	00H	00H	02H	01H	C5H	CDH
INPUT 3G SDI3	02H	03H	00H	00H	02H	01H	C6H	CEH
INPUT 3G SDI4	02H	03H	00H	00H	02H	01H	C7H	CFH
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)



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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.