

## PE455WL/PE455UL Installation Guide

### Desktop and Ceiling Mount

Rev 1.0

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#### Product Description

<b>Type:</b>	3 panel LCD projector, 0.64" p-Si TFT w/MLA	<b>Dimensions:</b> 18.9"(W) x 5.6"(H) x 16.0"(D)	<b>Weight:</b> 20.7 lbs
<b>Resolution:</b>	PE455WL: 1280 x 800 (16:10) PE455UL: 1920 x 1200 (16:10)	<b>Brightness:</b> PE455WL: 4500 Lumens PE455UL: 4500 Lumens	
<b>Fan Noise:</b>	PE455WL/PE455UL: 24 dB / 22dB @ 1 meter		
<b>Power Consumption:</b>	PE455WL: 279W (max) PE455UL: 316W (max)	<b>BTU's:</b>	PE455WL: 952.0 BTU/hour (max) PE455UL: 1078.2 BTU/hour (max)

Network Ready: Integrated wired (RJ45) and (optional) wireless adapter  
Manual: Horizontal & Vertical Lens Shift, Zoom, Focus

#### Lens Specifications

<b>Throw Ratio:</b>	PE455WL: 1.2-2.1:1 (for 100" diagonal) PE455UL: 1.2-2.0:1 (for 100" diagonal)	<b>Focal Length:</b>	PE455WL: 17.4mm – 29.0mm PE455UL: 17.2mm – 27.6mm
<b>Offset Angle:</b>	4.8° - 8.0° (for 100" diagonal)	<b>F/#:</b>	PE455WL: 1.7-2.2 PE455UL: 1.5-2.1
<b>Screen Sizes:</b>	25" - 300" diagonal	<b>Manual Focus/Manual Zoom/Manual Lens Shift</b>	

#### 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: 16:10 Aspect Ratio (PE455WL - 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 4:**

#### 16:10 Screen Formulas:

$$W = H \times 16/10$$

$$H = W \times 10/16$$

$$\text{Screen Diagonal} = W \times 18.868/16$$

#### Projection Formulas:

$$C \text{ (wide)} = 1.267W - 1.547$$

$$C \text{ (tele)} = 2.103W - 1.539$$

$$\text{Vertical Lens Shift Max (Up)} = 0.03125W$$

$$\text{Vertical Lens Shift Max (Down)} = -0.3125W$$

$$\alpha \text{ (wide)} = \tan^{-1} (B/C(\text{wide}))$$

$$\alpha \text{ (tele)} = \tan^{-1} (B/C(\text{tele}))$$

$$\text{Horizontal Lens Shift Max (Right)} = 0.26W$$

$$\text{Horizontal Lens Shift Max (Left)} = 0.26W$$

**Note:** For screen sizes not indicated on the projection tables, use the formulas on page 1.

#### Distance Charts

The following shows the proper relative positions of the projector and screen. Refer to the table to determine the position of installation. Distances are in inches. For millimeters multiply by 25.4.

Screen Size (16:10)			C		Vertical Lens Shift Range			α		Horizontal Lens Shift Range		
Diagonal	Width(W)	Height (H)	wide - tele		Max (Up)		Max (Down)	wide	tele	Max (Right)		Max (Left)
inches	inches	inches	inches		inches			degrees		inches		
57	48	30	60	- 100	2	-	-15	16.9	- 10.3	13	-	-13
66	56	35	69	- 116	2	-	-17	16.8	- 10.2	15	-	-15
68	58	36	72	- 120	2	-	-18	16.8	- 10.2	15	-	-15
75	64	40	79	- 132	2	-	-20	16.8	- 10.2	17	-	-17
79	67	42	83	- 139	2	-	-21	16.8	- 10.2	17	-	-17
85	72	45	90	- 150	2	-	-23	16.8	- 10.2	19	-	-19
92	78	49	97	- 163	2	-	-24	16.7	- 10.2	20	-	-20
98	83	52	104	- 173	3	-	-26	16.7	- 10.2	22	-	-22
102	86	54	108	- 180	3	-	-27	16.7	- 10.2	22	-	-22
111	94	59	118	- 196	3	-	-29	16.7	- 10.2	24	-	-24
113	96	60	120	- 200	3	-	-30	16.7	- 10.2	25	-	-25
123	104	65	131	- 218	3	-	-33	16.7	- 10.2	27	-	-27
125	106	66	133	- 221	3	-	-33	16.7	- 10.2	28	-	-28
147	125	78	156	- 261	4	-	-39	16.6	- 10.2	32	-	-32
149	126	79	159	- 264	4	-	-39	16.6	- 10.2	33	-	-33
213	181	113	227	- 378	6	-	-56	16.6	- 10.2	47	-	-47
255	216	135	272	- 453	7	-	-68	16.6	- 10.1	56	-	-56
270	229	143	289	- 480	7	-	-72	16.6	- 10.1	60	-	-60
300	254	159	321	- 533	8	-	-79	16.6	- 10.1	66	-	-66

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#### 16:10 Screen Formulas:

$$W = H \times 16/10$$

$$H = W \times 10/16$$

$$\text{Screen Diagonal} = W \times 18.868/16$$

#### Projection Formulas:

$$C (\text{wide}) = 1.237W - 1.394$$

$$C (\text{tele}) = 1.999W - 1.326$$

$$\text{Vertical Lens Shift Max (Up)} = 0.0625W$$

$$\text{Vertical Lens Shift Max (Down)} = -0.3125W$$

$$\alpha (\text{wide}) = \tan^{-1} (B/C(\text{wide}))$$

$$\alpha (\text{tele}) = \tan^{-1} (B/C(\text{tele}))$$

$$\text{Horizontal Lens Shift Max (Right)} = 0.29W$$

$$\text{Horizontal Lens Shift Max (Left)} = 0.-29W$$

**Note:** For screen sizes not indicated on the projection tables, use the formulas on page 1.

#### Distance Charts

The following shows the proper relative positions of the projector and screen. Refer to the table to determine the position of installation. Distances are in inches. For millimeters multiply by 25.4.

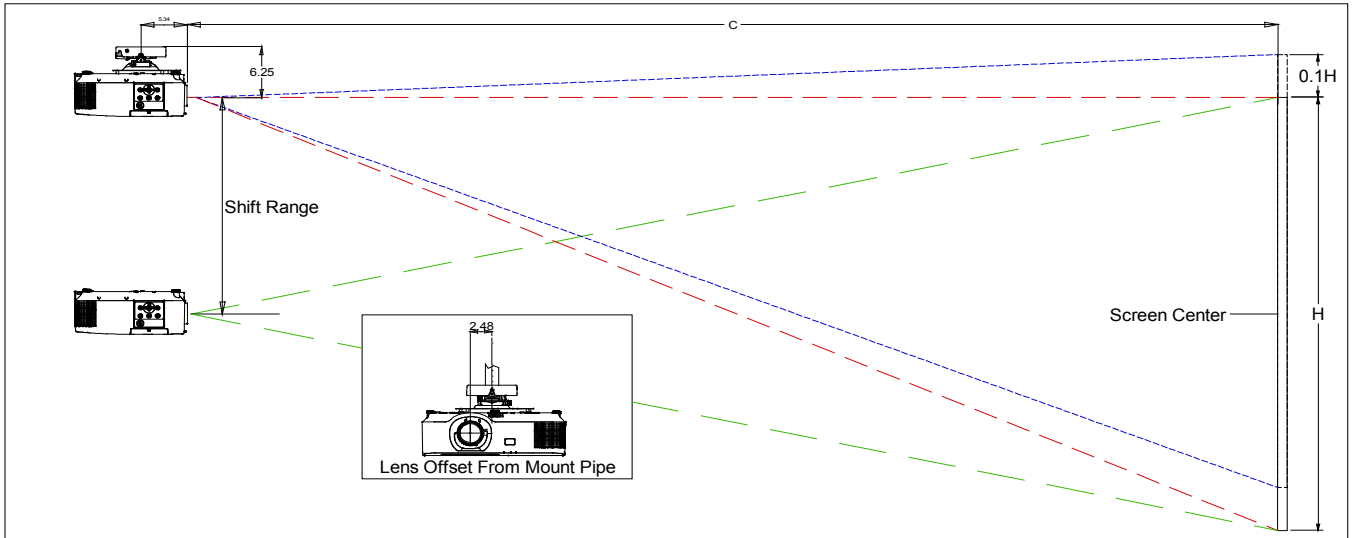
Screen Size (16:10)			C		Vertical Lens Shift Range			α		Horizontal Lens Shift Range		
Diagonal	Width(W)	Height (H)	wide - tele		Max (Up)		Max (Down)	wide - tele		Max (Right)		Max (Left)
inches	inches	inches	inches		inches			degrees		inches		
57	48	30	58	- 95	3	-	-15	17.2	- 10.8	14	-	-14
66	56	35	68	- 111	3	-	-17	17.2	- 10.7	16	-	-16
68	58	36	70	- 114	4	-	-18	17.2	- 10.7	17	-	-17
75	64	40	77	- 126	4	-	-20	17.2	- 10.7	18	-	-18
79	67	42	81	- 133	4	-	-21	17.1	- 10.7	19	-	-19
85	72	45	88	- 143	5	-	-23	17.1	- 10.7	21	-	-21
92	78	49	95	- 155	5	-	-24	17.1	- 10.7	23	-	-23
98	83	52	101	- 165	5	-	-26	17.1	- 10.7	24	-	-24
102	86	54	106	- 172	5	-	-27	17.1	- 10.7	25	-	-25
111	94	59	115	- 187	6	-	-29	17.1	- 10.7	27	-	-27
113	96	60	117	- 190	6	-	-30	17.1	- 10.7	28	-	-28
123	104	65	128	- 207	7	-	-33	17.0	- 10.7	30	-	-30
125	106	66	130	- 211	7	-	-33	17.0	- 10.7	31	-	-31
147	125	78	153	- 248	8	-	-39	17.0	- 10.7	36	-	-36
149	126	79	155	- 251	8	-	-39	17.0	- 10.7	37	-	-37
213	181	113	222	- 360	11	-	-56	17.0	- 10.7	52	-	-52
255	216	135	266	- 431	14	-	-68	16.9	- 10.7	63	-	-63
270	229	143	282	- 456	14	-	-72	16.9	- 10.7	66	-	-66
300	254	159	313	- 507	16	-	-79	16.9	- 10.7	74	-	-74

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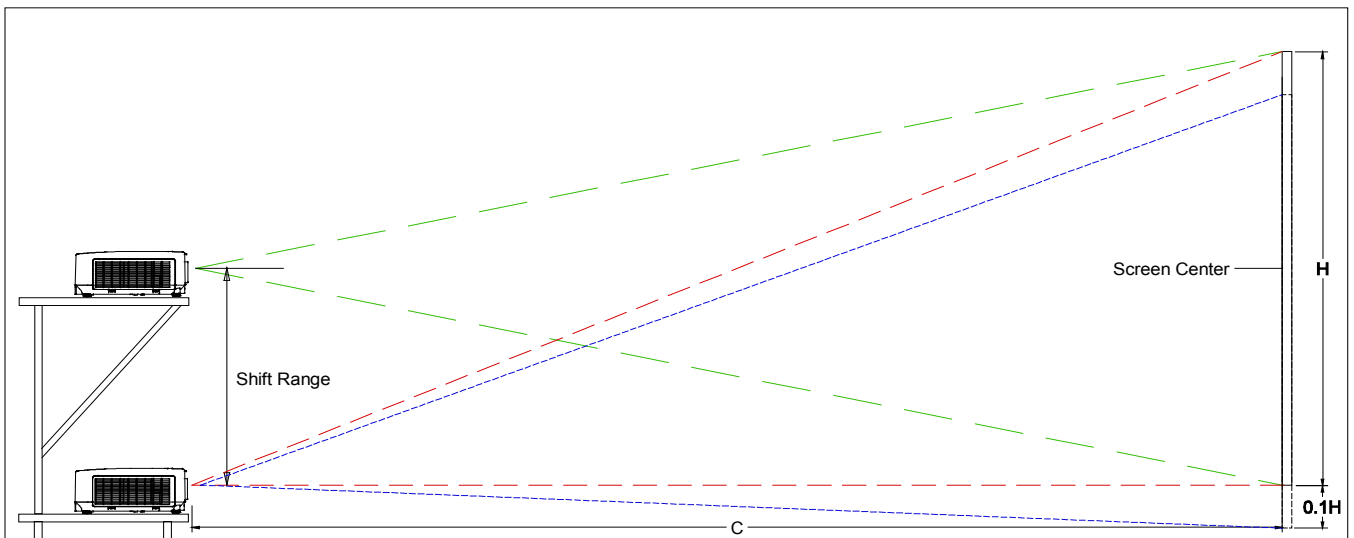
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### Ceiling Mounted



### Desktop



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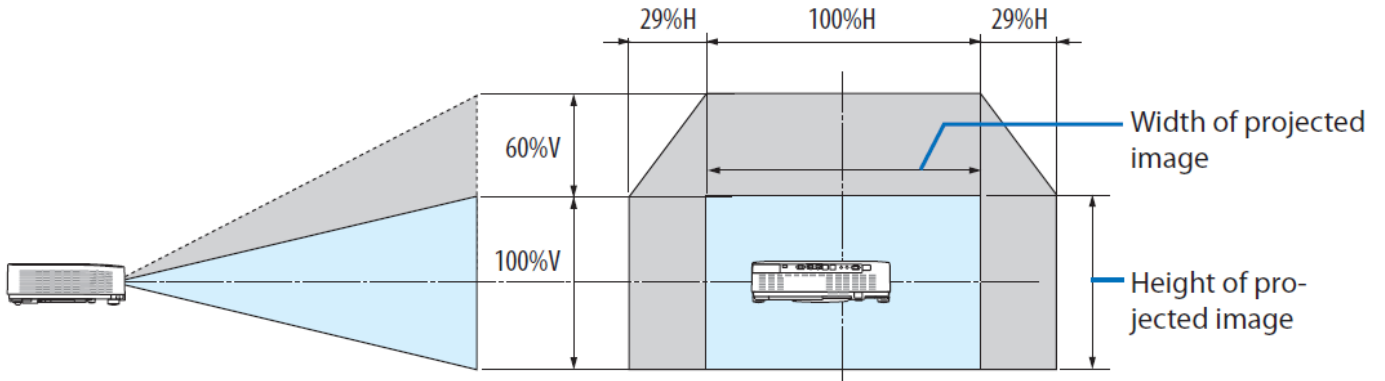
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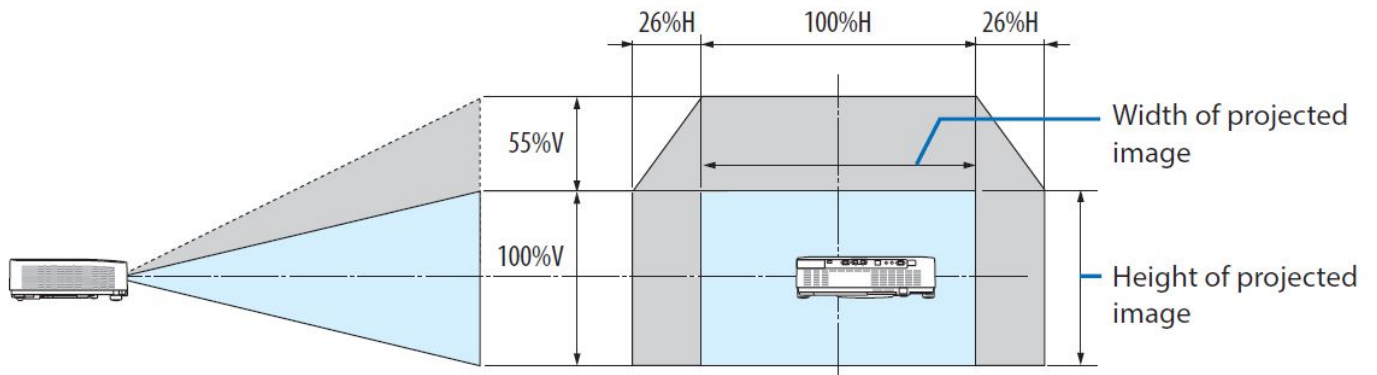
#### Lens Shift Adjustable Range

##### Lens Shift Range for Desktop and Ceiling Mount Application

The diagram below shows the location of the image position in the lens for the PE455UL. The PE455UL has a maximum horizontal lens shift range of +/- 29% and a maximum vertical lens shift of + 60%. The lens can be shifted within the shaded area as shown using the normal projection position as a starting point.



The diagram below shows the location of the image position in the lens for the PE455WL. The PE455WL has a maximum horizontal lens shift range of +/- 26% and a maximum vertical lens shift of + 55%. 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 center position, which is how it is depicted above.

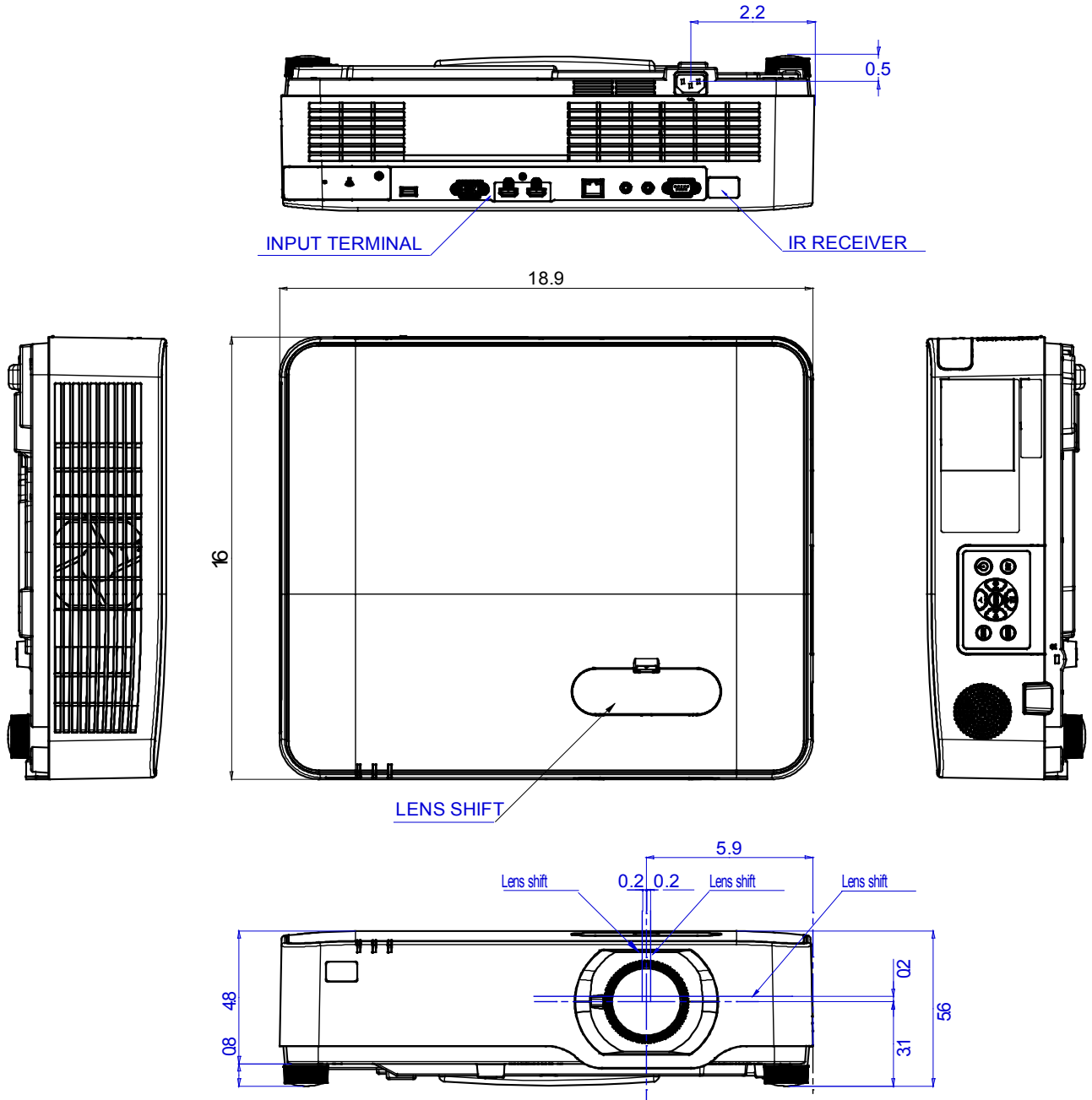
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### Cabinet Dimensions

The following diagrams show the cabinet dimensions for the PE455WL/PE455UL. Dimensions are in inches. For millimeters multiply by 25.4.

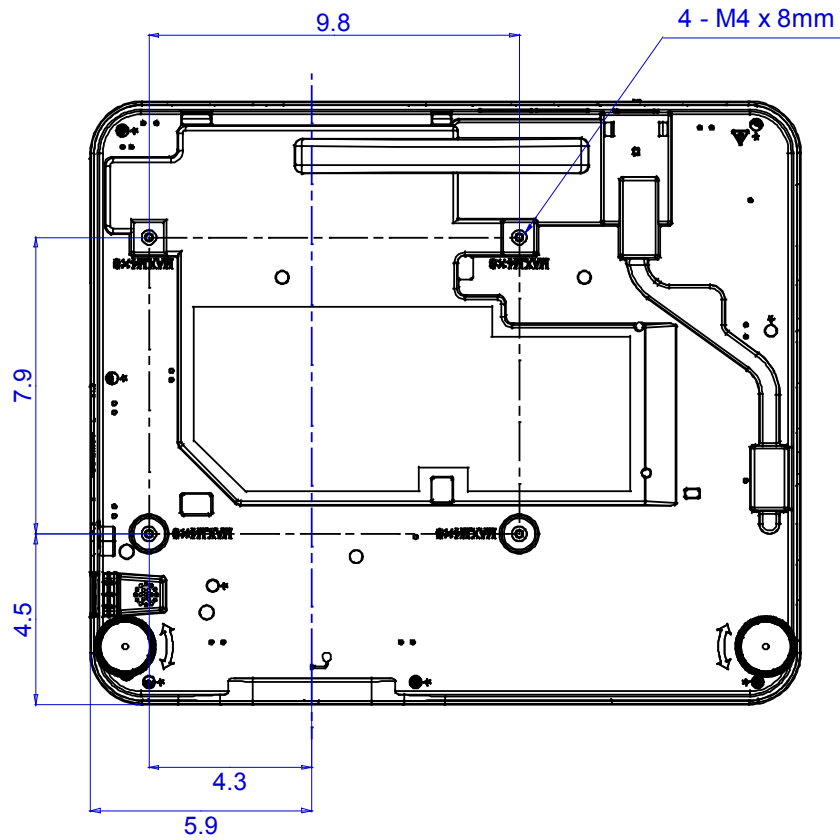


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### Cabinet Dimensions

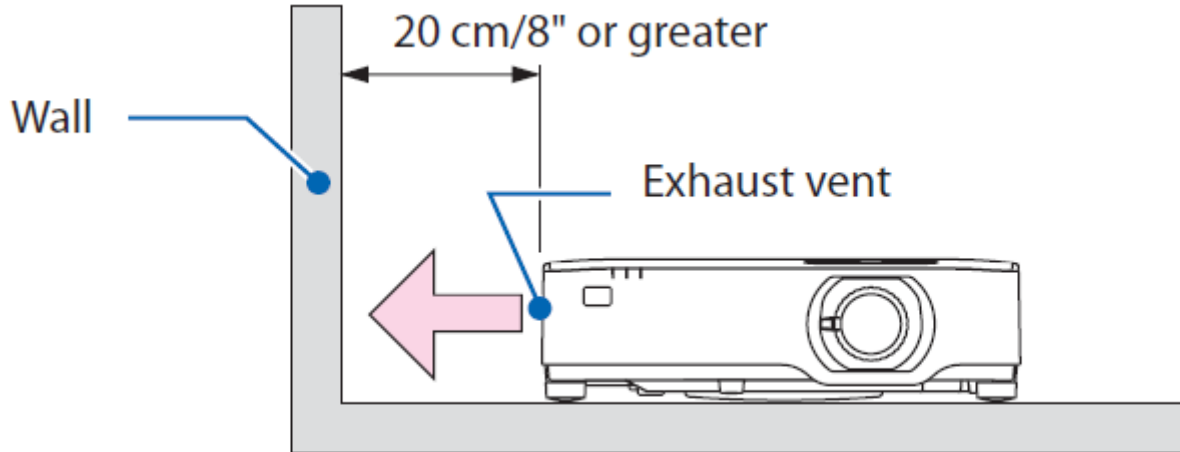


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### Ventilation Requirements



### Input Panel



### Control Panel





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### PC Control Codes

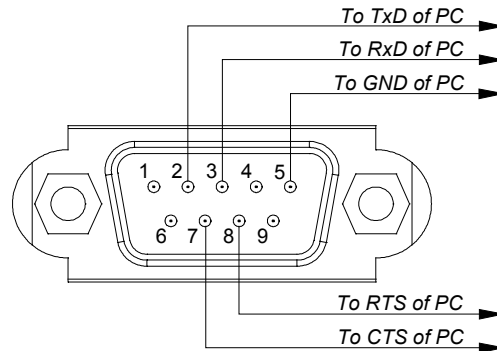
Function	Code Data							
POWER ON	02H	00H	00H	00H	00H	02H		
POWER OFF	02H	01H	00H	00H	00H	03H		
INPUT SELECT Computer	02H	03H	00H	00H	02H	01H	09H	
INPUT SELECT HDMI1	02H	03H	00H	00H	02H	01H	A1H	A9H
INPUT SELECT HDMI2	02H	03H	00H	00H	02H	01H	A2H	AAH
INPUT SELECT HDBaseT	02H	03H	00H	00H	02H	01H	BFH	C7H
INPUT SELECT USB-A	02H	03H	00H	00H	02H	01H	1FH	27H
INPUT SELECT LAN	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		
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.