

## P451X/P501X Installation Guide

### Ceiling Mounted and Desktop

Rev 1.0

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#### Product Description

Type:	3 panel LCD projector, P451X/P501X: 0.63" p-Si TFT w/MLA	Dimensions: 15.7" (W) x 4.5" (H) x 11.1" (D)
Resolution:	1024 x 768	Weight: 8.6 lbs
Fan Noise:	P451X: 36 dB / 29dB @ 1 meter P501X : 37 dB / 30dB @ 1 meter	Brightness: P451X : 4500 Lumens P501X : 5000 Lumens
Power Consumption:	P451X: 325W (max) P501X: 357W (max)	BTU's: P451X : 1109 BTU/hour P501X : 1218 BTU/hour

#### Lens Specifications

Throw Ratio:	1.3 – 2.2:1 (for 100" diagonal)	Focal Length:	17.4mm – 29.0mm
Offset Angle:	6.6° - 10.9° (for 100" diagonal)	F/#:	1.7 - 2.0
Screen Sizes:	25" - 300" diagonal (4:3)	Manual Focus/Manual Zoom	

#### 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.
- All calculations are based on a 4:3 aspect ratio.
- Distances are in inches, for millimeters multiply by 25.4.
- Distances may vary ±5%.

#### Formulas

The Projection Formulas use the image width for calculation. For proper projection placement, determine the image width for the desired screen size. Use the Screen Formulas below to calculate all screen dimensions. Plug in the width for "W" in the Projection Formulas.

Refer to the diagrams and charts for popular screen sizes on page 2:

#### Definitions:

W = Image Width  
H = Image Height (size)  
B = Vertical distance between lens center and screen center  
C = Throw distance  
D = Vertical distance between lens center and screen top  
(screen bottom for desktop application)

#### 4:3 Screen Formulas:

W = H x 4/3  
H = W x 3/4  
Screen Diagonal = W x 5/4

#### Projection Formulas:

B = 0.258W  
C (wide) = 1.366W – 1.77  
C (tele) = 2.268W – 1.77  
D = -0.117W  
 $\alpha$  (wide) =  $\tan^{-1}$  (B/C(wide))  
 $\alpha$  (tele) =  $\tan^{-1}$  (B/C(tele))

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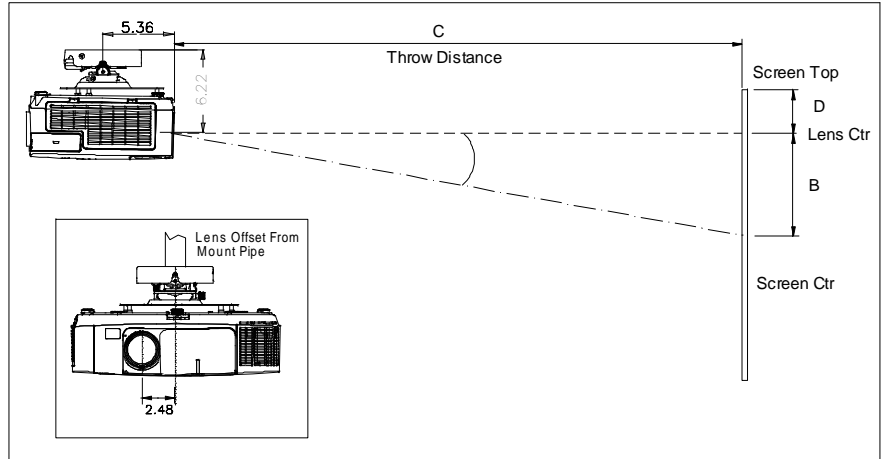
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### Diagrams and Distance Charts

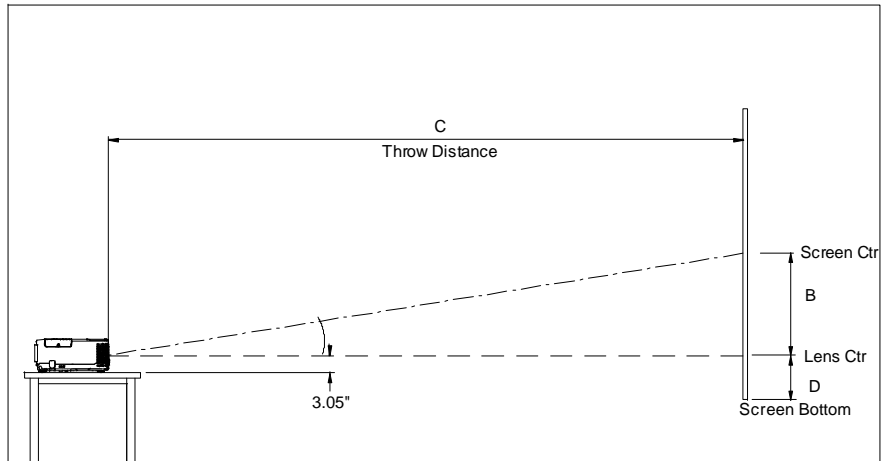
The following shows the proper relative positions of the projector and screen. Refer to the table to determine the position of installation.

Distances are in inches. For millimeters multiply by 25.4.

#### Ceiling Mounted



#### Desktop



#### Distance Chart for popular 4:3 screens

Screen Size (4:3)			B	C		D	α	
Diagonal	Width(W)	Height (H)	inches	wide - tele		inches	degrees	
inches	inches	inches	inches	inches	inches	inches	degrees	degrees
30	24	18	6	31	- 53	-3	11.3	- 6.7
60	48	36	12	64	- 107	-6	11.0	- 6.6
67	53.6	40.2	14	72	- 120	-6	10.9	- 6.6
72	57.6	43.2	15	77	- 129	-7	10.9	- 6.6
84	67.2	50.4	17	90	- 151	-8	10.9	- 6.6
90	72	54	19	97	- 162	-8	10.9	- 6.6
100	80	60	21	108	- 180	-9	10.9	- 6.6
120	96	72	25	130	- 216	-11	10.8	- 6.5
150	120	90	31	162	- 270	-14	10.8	- 6.5
180	144	108	37	195	- 325	-17	10.8	- 6.5
210	168	126	43	228	- 379	-20	10.8	- 6.5
240	192	144	50	261	- 434	-22	10.8	- 6.5
270	216	162	56	294	- 488	-25	10.7	- 6.5
300	240	180	62	327	- 543	-28	10.7	- 6.5

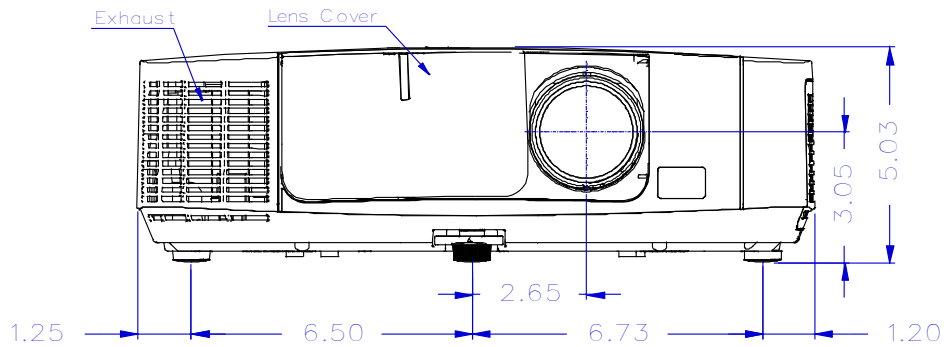
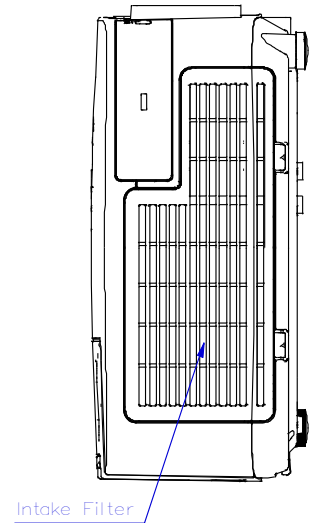
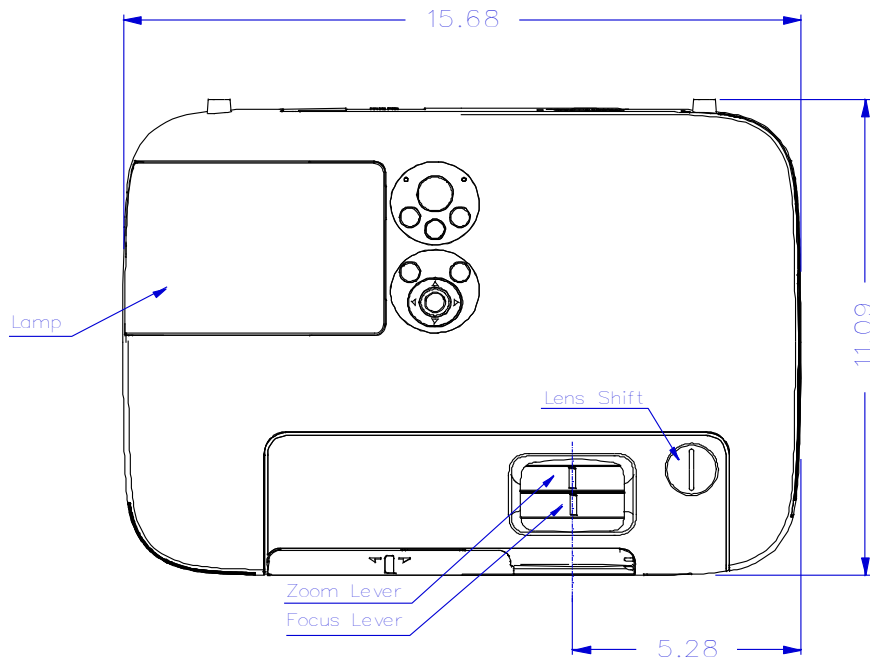
**Note:** For screen sizes not indicated on the projection tables, use the formulas on page 1.

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### Cabinet Dimensions

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



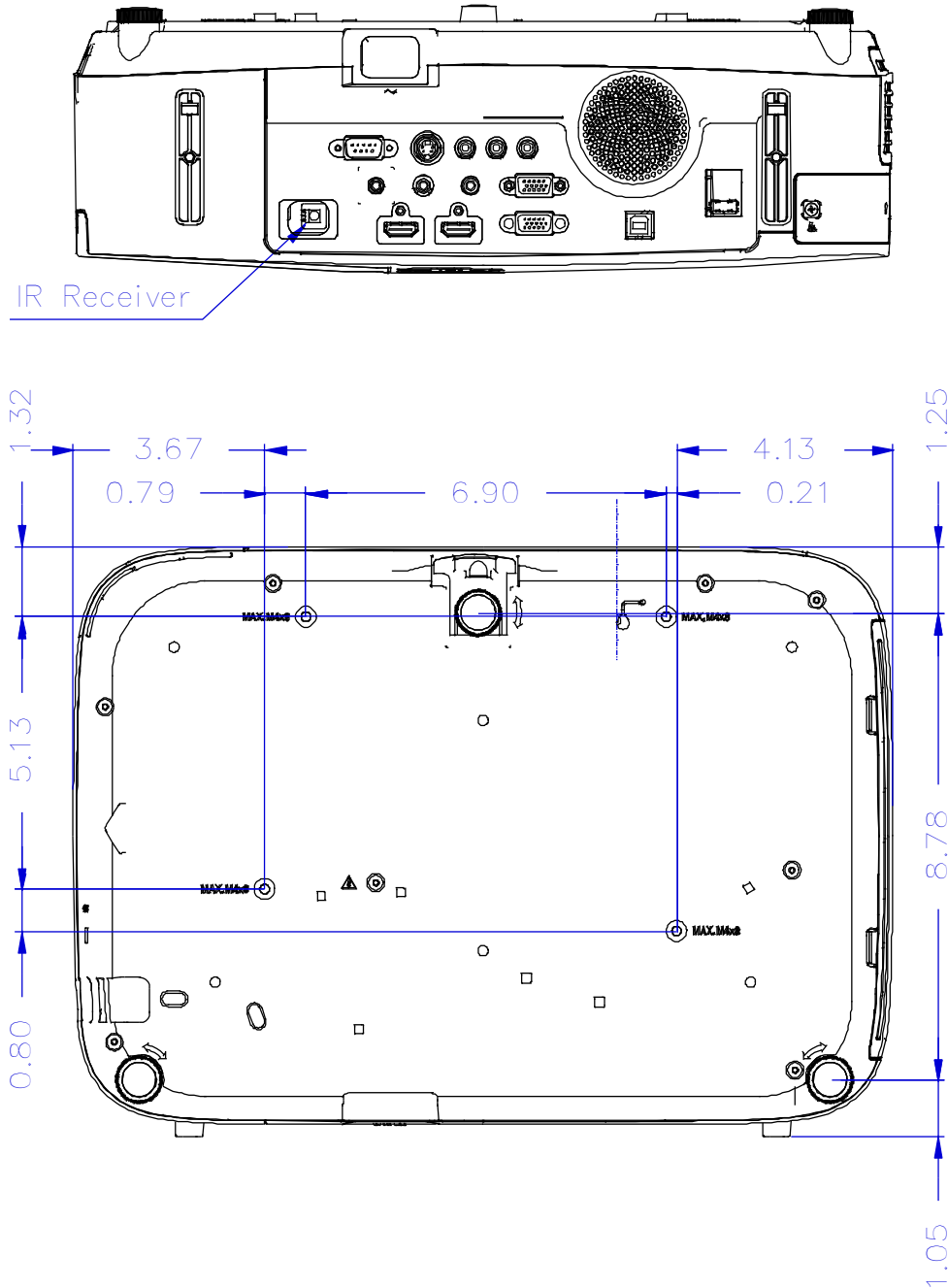
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#### Cabinet Dimensions (continued)

The following drawings show the cabinet dimensions. Dimensions are in inches. For millimeters multiply by 25.4. Requires (4) M4x8mm screws for mount attachment.



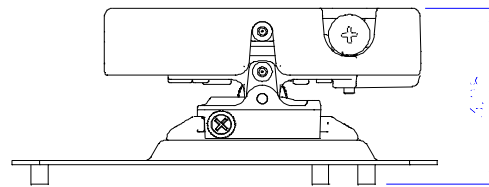
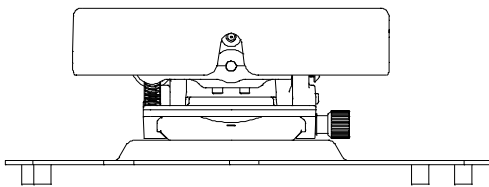
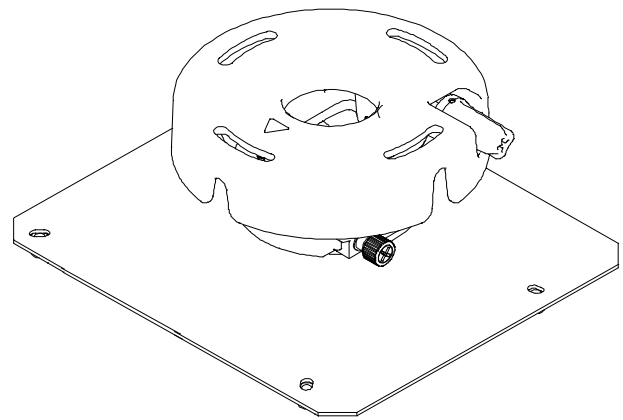
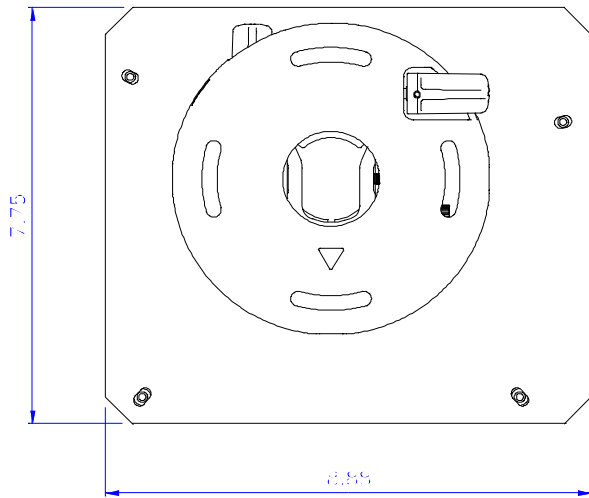
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#### Optional Ceiling Mount Dimensions (Model #: MP300CM)

The following drawings show the ceiling mount dimensions. Dimensions are in inches. For millimeters multiply by 25.4.



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### Input / Output Panel



### PC Control Codes

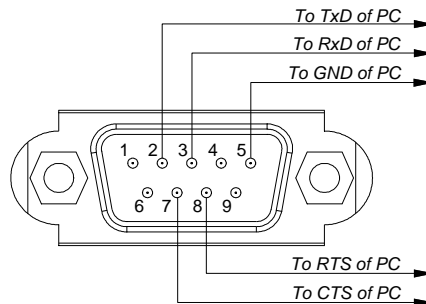
Function	Code Data
POWER ON	02H 00H 00H 00H 00H 02H
POWER OFF	02H 01H 00H 00H 00H 03H
INPUT SELECT COMPUTER1	02H 03H 00H 00H 02H 01H 01H 09H
INPUT SELECT HDMI1	02H 03H 00H 00H 02H 01H 1AH 22H
INPUT SELECT HDMI2	02H 03H 00H 00H 02H 01H 1BH 23H
INPUT SELECT VIDEO	02H 03H 00H 00H 02H 01H 06H 0EH
INPUT SELECT 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
INPUT SELECT USB DISPLAY	02H 03H 00H 00H 02H 01H 22H 2AH
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
PROJECTOR INFORMATION REQUEST	00H BFH 00H 00H 01H 02H C2H
ERROR STATUS REQUEST	00H 88H 00H 00H 00H 88H
INFORMATION REQUEST	03H 8AH 00H 00H 00H 8DH

**Note:** Contact your NEC rep for codes not listed.

### Cable Connection

#### Communication Protocol:

Baud Rate: 38400 bps  
 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.