

P12T Touch-Interactive Projector Distance and Positioning Calculator

Introduction

This document provides distance calculation and positioning information for the P12 touch-interactive projector, enabling you to determine the proper placement for the touch interactive WXGA, 16:9, and ultra-wide models of the P12 projector. It is essential to reference the correct table for the projector model and measurement units (millimeters or inches) when placing the wall bracket.

Note: This document is only for the touch-interactive models of the P12 projector. The distance calculation and positioning information for the pen-interactive and non-interactive P12 models is on a separate document titled "P12 Pen-Interactive and Non-Interactive Projector Positioning Guide."

Projection Surface Flatness Requirement

The touch-interactivity feature requires a laser-flat projection surface with a non-planarity specification of $\pm 0.12''$ ($\pm 3\text{mm}$). Using a projection surface that does not comply with this requirement will produce unsatisfactory or unreliable tracking performance.

It is very strongly recommended that the Laser Curtain Module be placed on the projection surface itself so as assure coplanarity.

Frameless Versus Framed Whiteboards

The touch-interactive feature uses an infrared camera embedded in the projector to detect reflected infrared light generated by the Laser Curtain Module. False positives caused by reflections from a frame surrounding the projection surface or environmental sources of infrared can cause performance degradation.

If a framed whiteboard is used, the image must be positioned away from the frame at the distances shown in the diagram below. A frameless whiteboard is recommended as it does not have this requirement.

Background

It is essential that the top of the projected image be positioned below the Tracking Buffer space as shown at right.

- 0.8" (20mm) for WXGA/HD
- 1.6" (40mm) for the ultra-wide 16:6

Positioning the top of the projected image starts with positioning the wall mount bracket. The wall mount bracket will produce an image of the desired size when the top of the wall plate is positioned at a distance "O" as on the diagram below (outlined in red dashes).

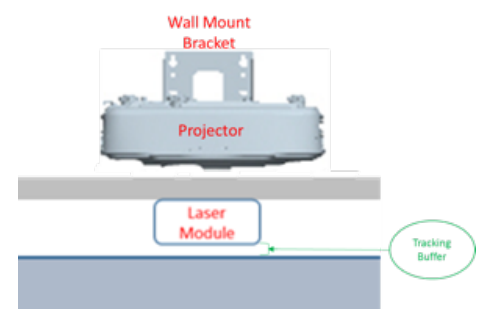
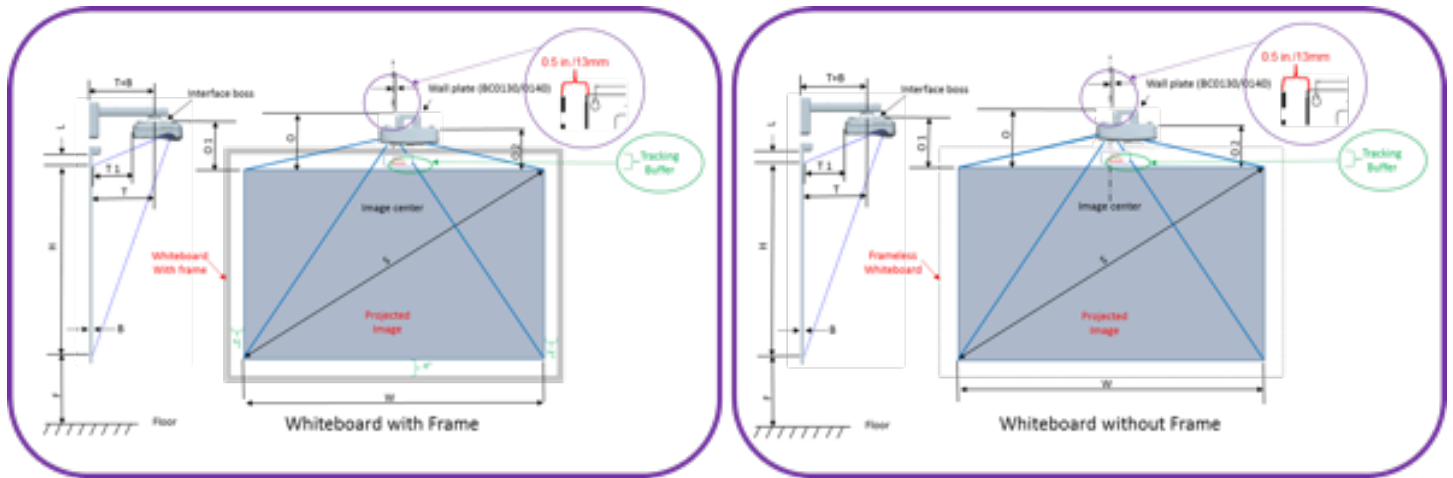


Figure 1

P12T Touch-Interactive Projector Distance and Positioning Calculator



Positioning the Wall Bracket

The wall bracket must be positioned horizontally as shown on the diagram at right. The left edge of the wall bracket must be 0.5" (13mm) to the right of the intended image center. If the wall bracket is instead centered on the whiteboard, which initially seems the likely placement, the displayed image will not be centered and proper alignment will not be possible.

Vertical positioning of the wall bracket should be determined from the relevant table below based on the intended image size and aspect ratio.

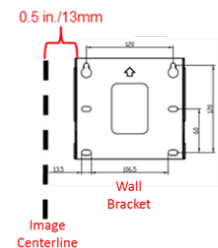


Figure 2

Mounting Arms

The 27" (697mm) WallMount-P12W is the model bundled with the WXGA and 16:9 models.

The longer 33" (841mm) WallMount-P12U is the model bundled with the P12 ultra-wide model.

Example One

To produce the largest possible diagonal image at 16:10 aspect ratio on a frameless whiteboard:

- Measure the width and height of the projection surface. In this example, the measured width is 80" and the height 48".
 - Deduct 2" for the Laser Curtain Module + 0.8" for the Tracking Buffer = 2.8".
 - The available height is $48" - 2.8" = 45.2"$.
 - The WXGA table below shows that a 45.2" height will allow a diagonal size of 80", which has a width of 72.1" and leaves $\approx 9"$ of open space on the left and right.
- Determine the horizontal center of the intended image then mark a point 0.5" (13mm) to the right of this. This mark defines the horizontal position of the left edge of the wall bracket.
- From the WXGA table below – Distance "O" for the 85" image is 13.5".
- Mount the wall bracket so its top edge is that distance above the top of where the projected image is to be positioned (which is 2.8" below the top of the whiteboard's projection surface).
- Attach the projector to the projector mounting bracket, leaving the four bolts slightly loose so the projector can be adjusted horizontally.

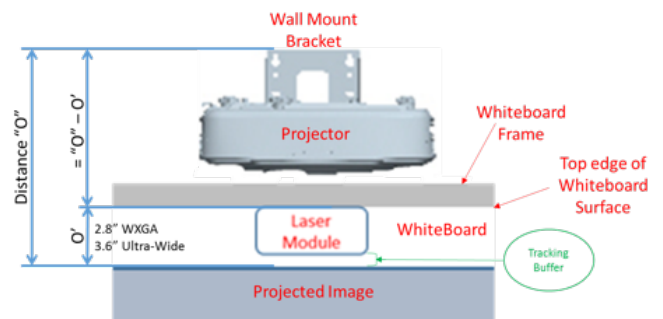
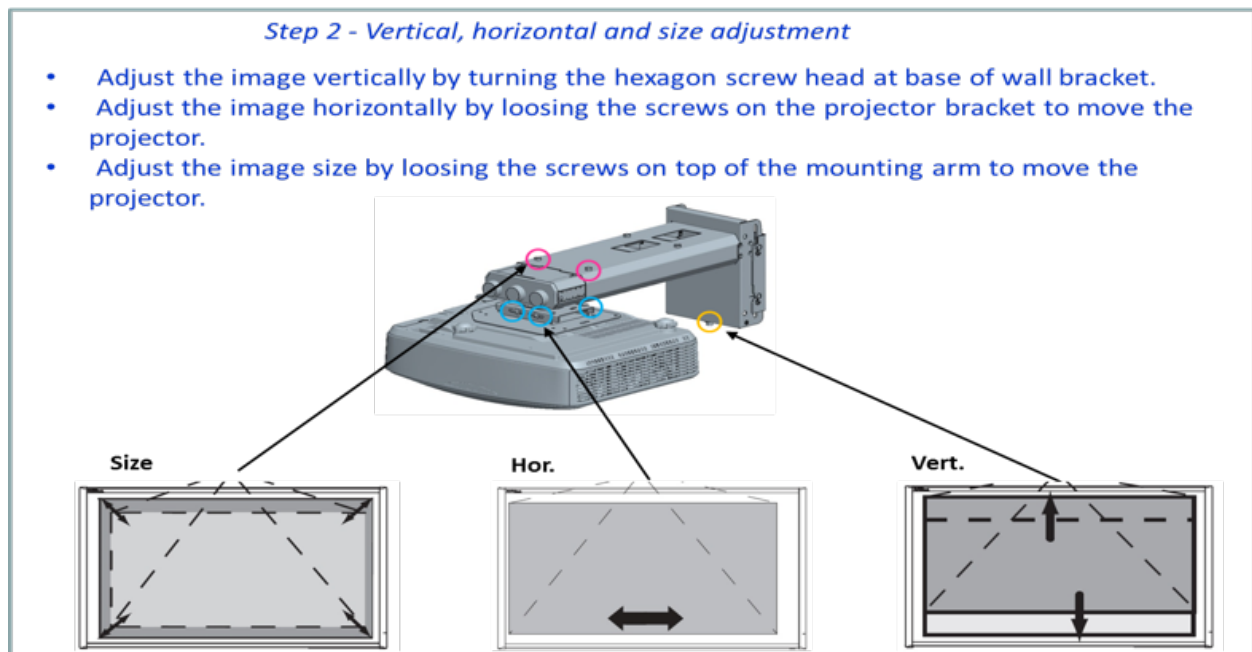
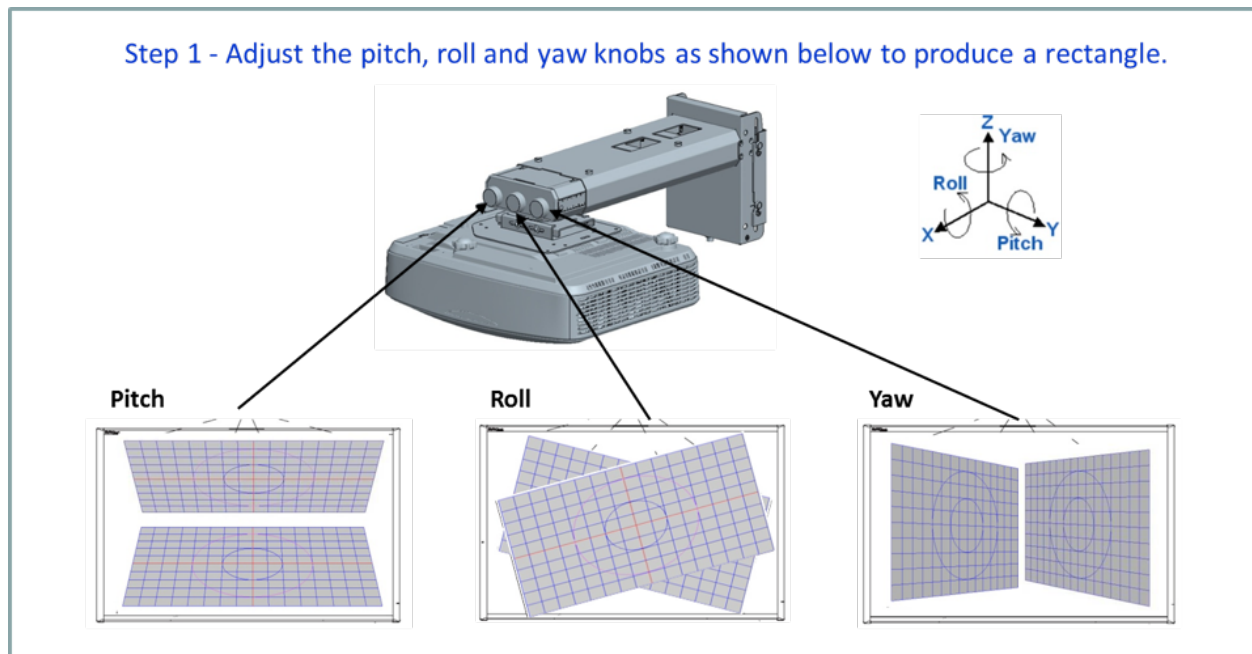


Figure 3

P12T Touch-Interactive Projector Distance and Positioning Calculator

- Attach the mounting arm with projector to the wall bracket. Leave the four bolts that secure the arm to the wall bracket loose so the assembly can be adjusted vertically.
- The projector's vertical position can be adjusted using the bolt (1/2", 13mm) at the bottom of the bracket. Tighten the bolts on the sides once the position is finalized.
- The projector can be adjusted horizontally $\approx \pm 1/2"$ (6mm) by sliding it within the projector mounting bracket. Tighten the bolts once the position is finalized.
- Proceed to the alignment stage of the process below.



P12T Touch-Interactive Projector Distance and Positioning Calculator

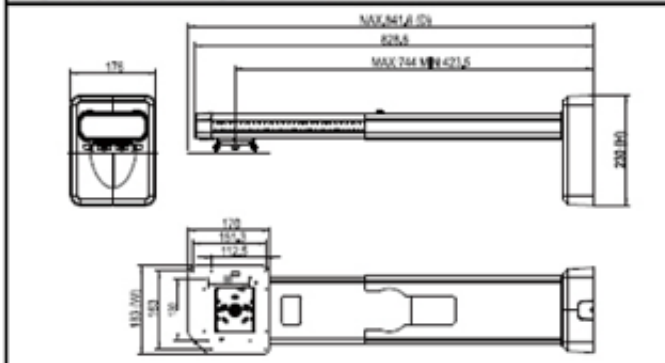


WallMount-P12U



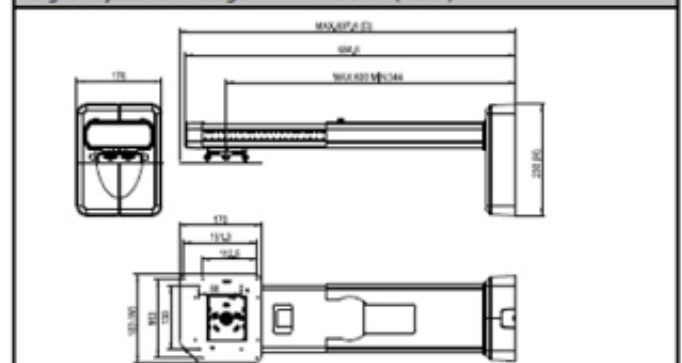
WallMount-P12W

SPECIFICATIONS	
Screw Type	M4
Material	Steel/Zinc Alloy/Plastic
Dimension(W*H*D)	183*230*841.6mm(7.20"x9.06"x33.13")
Weight (Net)	4.0 (8.82 lbs)
Swivel	+/-5°
Vertical Tilt	+/-5°
Horizontal Tilt	+/-5°
Support Max. Weight	15kg(33.1lbs)
Max. Distance To The Wall	744mm(29.29")
Horizontal Lateral Move	+/-40mm(1.57")
Height Adjustment Range	+/-38mm(1.50")



<p>Swivel ±5°</p>	<p>Height Adjustment Range ±38mm</p>	<p>Horizontal Tilt ±5°</p>
<p>Horizontal Lateral Move +/- 40mm</p>	<p>Cable Management</p>	<p>Hinge Module</p>
	<p>Vertical Tilt ±5°</p>	

SPECIFICATIONS	
Screw Type	M4
Material	Steel/Zinc Alloy/Plastic
Dimension(W*H*D)	183*230*697.6mm(7.20"x9.06"x27.46")
Weight (Net)	3.6 kg (7.94 lbs)
Swivel	+/-5°
Vertical Tilt	+/-5°
Horizontal Tilt	+/-5°
Support Max. Weight	15kg(33.1lbs)
Max. Distance To The Wall	600mm(23.62")
Horizontal Lateral Move	+/-40mm(1.57")
Height Adjustment Range	+/-38mm(1.50")



<p>Swivel ±5°</p>	<p>Height Adjustment Range ±38mm</p>	<p>Horizontal Tilt ±5°</p>
<p>Horizontal Lateral Move +/- 40mm</p>	<p>Cable Management</p>	<p>Hinge Module</p>
	<p>Vertical Tilt ±5°</p>	

P12T Touch-Interactive Projector Distance and Positioning Calculator

P12 WXGA (16:10) Wall mount installation measurement chart - inches							
Diagonal image size (S) in inch	Image width (W) in in.	Image height (H) in in.	Distance from surface of whiteboard to center of projector mount (T) in in.	Distance from surface of whiteboard to back of projector (T1) in in.	Distance from top of image to top of wall plate (O) in in.	Distance from top of image to top of interface boss (O1) in in.	Distance from top of image to top of projector (O2) in in.
85	72.1	45.0	14.6	9.2	13.5	10.5	9.7
86	72.9	45.6	14.8	9.4	13.5	10.6	9.8
87	73.8	46.1	15.0	9.6	13.6	10.6	9.8
88	74.6	46.7	15.2	9.8	13.7	10.7	10.0
89	75.5	47.2	15.5	10.1	13.8	10.8	10.0
90	76.3	47.7	15.7	10.3	13.9	10.9	10.1
91	77.2	48.2	15.9	10.5	14.0	11.0	10.2
92	78.0	48.8	16.1	10.7	14.1	11.1	10.3
93	78.9	49.3	16.4	11.0	14.2	11.2	10.4
94	79.7	49.8	16.6	11.2	14.3	11.3	10.5
95	80.6	50.4	16.8	11.4	14.4	11.4	10.6
96	81.4	50.9	17.0	11.7	14.5	11.5	10.7
97	82.2	51.4	17.3	11.9	14.6	11.6	10.8
98	83.1	51.9	17.5	12.1	14.7	11.7	10.9
99	83.9	52.5	17.7	12.3	14.8	11.8	11.0
100	84.8	53.0	18.0	12.6	14.8	11.9	11.1
101	85.6	53.5	18.1	12.8	15.0	12.0	11.2
102	86.5	54.1	18.4	13.0	15.0	12.0	11.3
103	87.4	54.6	18.6	13.2	15.1	12.1	11.3
104	88.2	55.1	18.9	13.5	15.2	12.2	11.5
105	89.1	55.7	19.1	13.7	15.3	12.3	11.5
106	89.9	56.2	19.3	13.9	15.4	12.4	11.7
107	90.7	56.7	19.5	14.1	15.5	12.5	11.7
108	91.6	57.2	19.7	14.3	15.6	12.6	11.8
109	92.4	57.8	20.0	14.6	15.7	12.7	11.9
110	93.3	58.3	20.2	14.8	15.8	12.8	12.0
111	94.1	58.8	20.4	15.0	15.9	12.9	12.1
112	95.0	59.4	20.6	15.2	16.0	13.0	12.2
113	95.8	59.9	20.9	15.5	16.1	13.1	12.3
114	96.7	60.4	21.1	15.7	16.2	13.2	12.4
115	97.5	60.9	21.3	15.9	16.3	13.3	12.5

P12T Touch-Interactive Projector Distance and Positioning Calculator

P12 1080P (16:9) Wall mount installation measurement chart - inches							
Diagonal image size (S) in inch	Image width (W) in in.	Image height (H) in in.	Distance from surface of whiteboard to center of projector mount (T) in in.	Distance from surface of whiteboard to back of projector (T1) in in.	Distance from top of image to top of wall plate (O) in in.	Distance from top of image to top of interface boss (O1) in in.	Distance from top of image to top of projector (O2) in in.
87	75.8	42.6	14.6	9.2	14.3	11.3	10.6
88	76.7	43.1	14.8	9.4	14.4	11.5	10.7
89	77.6	43.6	15.0	9.6	14.6	11.6	10.8
90	78.4	44.1	15.2	9.8	14.6	11.7	10.9
91	79.3	44.6	15.5	10.1	14.8	11.8	11.0
92	80.2	45.1	15.7	10.3	14.8	11.9	11.1
93	81.1	45.6	15.9	10.5	15.0	12.0	11.2
94	81.9	46.1	16.1	10.7	15.1	12.1	11.3
95	82.8	46.6	16.3	10.9	15.2	12.2	11.4
96	83.7	47.1	16.6	11.2	15.3	12.3	11.5
97	84.5	47.6	16.8	11.4	15.4	12.4	11.6
98	85.4	48.0	17.0	11.6	15.5	12.5	11.7
99	86.3	48.5	17.2	11.8	15.6	12.6	11.8
100	87.2	49.0	17.4	12.0	15.7	12.7	11.9
101	88.0	49.5	17.6	12.2	15.8	12.8	12.0
102	88.9	50.0	17.9	12.5	15.9	12.9	12.1

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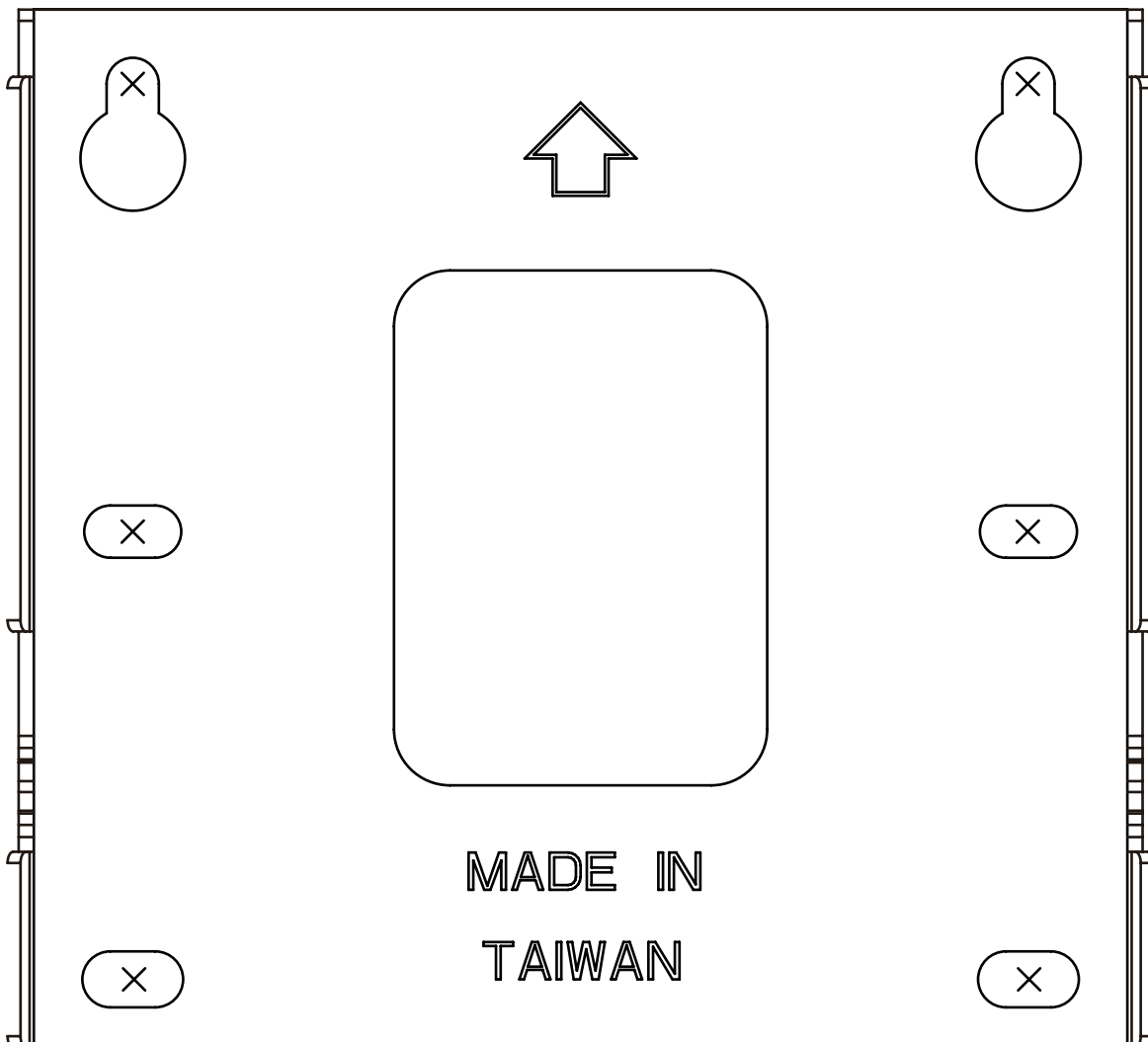
P12 UWHD (16:6) Wall mount installation measurement chart - inches							
Diagonal image size (S) in inch	Image width (W) in in.	Image height (H) in in.	Distance from surface of whiteboard to center of projector mount (T) in in.	Distance from surface of whiteboard to back of projector (T1) in in.	Distance from top of image to top of wall plate (O) in in.	Distance from top of image to top of interface boss (O1) in in.	Distance from top of image to top of projector (O2) in in.
120	112.4	42.1	23.8	18.4	18.2	15.2	14.4
121	113.3	42.5	24.0	18.6	18.3	15.3	14.5
122	114.2	42.8	24.3	18.9	18.4	15.4	14.6
123	115.2	43.2	24.5	19.1	18.5	15.5	14.7
124	116.1	43.5	24.7	19.3	18.6	15.6	14.8
125	117.0	43.9	25.0	19.6	18.7	15.7	15.0
126	118.0	44.3	25.2	19.8	18.8	15.8	15.0
127	118.9	44.6	25.4	20.0	18.9	15.9	15.2
128	119.8	44.9	25.7	20.3	19.1	16.1	15.3
129	120.8	45.3	25.9	20.5	19.1	16.1	15.4
130	121.7	45.6	26.1	20.7	19.3	16.3	15.5
131	122.6	46.0	26.4	21.0	19.4	16.4	15.6
132	123.6	46.3	26.6	21.2	19.4	16.5	15.7
133	124.5	46.7	26.9	21.5	19.6	16.6	15.8
134	125.5	47.0	27.1	21.7	19.7	16.7	15.9
135	126.4	47.4	27.3	21.9	19.8	16.8	16.0
136	127.3	47.8	27.6	22.2	19.9	16.9	16.1
137	128.3	48.1	27.8	22.4	20.0	17.0	16.2
138	129.2	48.5	28.0	22.6	20.1	17.1	16.3
139	130.2	48.8	28.3	22.9	20.2	17.2	16.4
140	131.1	49.2	28.5	23.1	20.3	17.3	16.5

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Wall Mount P12U and P12W Plate Template

CONFIRM PRINTED PAPER SIZE

1. Template must be printed at 100%.
2. Prior to printing, ensure that Page Scaling is set to "None" on your print dialog box.
3. Measure the bar below. It must be exactly 3 inches long.



P12T Touch-Interactive Projector Distance and Positioning Calculator



Caution

1. To ensure safety, please read this manual carefully before installation and follow the instructions herein. Store this manual in a secure place for future reference.
2. The manufacturer shall not be responsible legally for any equipment damage or personal injury caused by incorrect installation or operation not covered in this manual.
3. The wall mount is designed for easy installation and removal. The manufacturer shall not be liable for damage to equipment or personnel injuries arising out of human factors or acts of God.
4. The projector hanger must be installed by professional personnel.
5. At least two persons are needed to install or remove the product in order to avoid any hazard caused by falling objects.
6. Remember to maintain ample space around the projector to ensure suitable ventilation.
7. To ensure safety and avoid any accident, it is necessary to investigate the structure of the ceiling and select an appropriate, durable location before installation.
8. The ceiling should have load-carrying capability to sustain more than four times the total weight of the projector and the hanger. Also, make sure it has enough strength to withstand earthquakes and other shocks.
9. Please carefully check the areas around where the hanger is to be installed:
 - Avoid any places that have high temperatures, humidity, or are subject to contact with water.
 - Do not install the product near air conditioning vents and avoid places where it is dusty or fummy.
 - Only install on vertical walls and avoid slanted surfaces.
 - Do not install in places subject to vibrations or shocks.
 - Do not install in places subject to direct exposure to bright light, as it may cause eye fatigue when viewing the display panel.
10. Do not modify any accessory or use broken parts. Contact local distributors if you have any questions.
11. Tighten all screws (do not exert force on any screw with excess torque to avoid breaking the screw or damaging its thread).
12. The maximum weight of the projector that the hanger can support is below 15kg (33lbs).
13. Do not hang any other objects except the projector on this hanger. Hanging on this hanger by any personnel is strictly prohibited.
14. Drill holes and screws will be left on the wall once the projector and hanger are removed. Stains may occur after extended use.
15. Since the manufacturer has no way to control the wall type and installation of wall mount, the warranty of the product shall only cover the body of the wall mount. The warranty period of the product is 5 years.
16. Please consult the English language manual for any dispute on conditions.