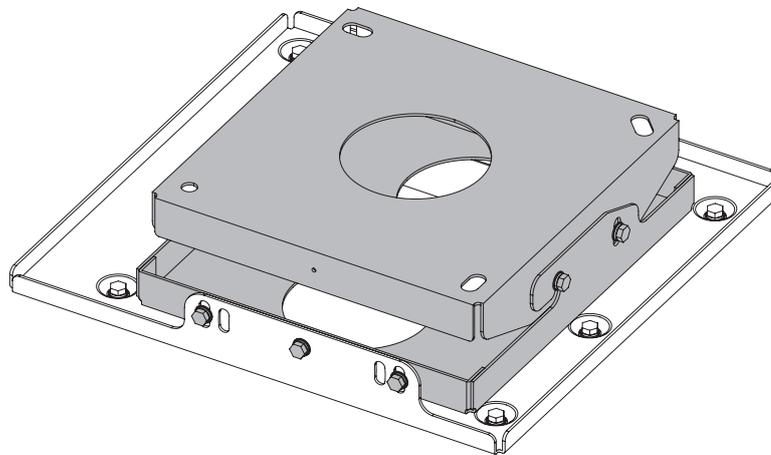


## Installation Instructions Ceiling Mount Bracket (for Low Ceilings)

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Model No. **ET-PKD120S**



- \* The figure above shows a combination of this product and the separately sold ET-PKD120B projector mount bracket.
- \* Unless specified otherwise, the ET-PKD120B is used in the illustrations of the projector mount bracket in these instructions.

Thank you for purchasing this Panasonic product.

- To customers  
The "Installation Instructions" is intended for use by installation personnel. Be sure to employ certified personnel to perform the installation.  
After installation, have the installation personnel return these "Installation Instructions" to you, and save it for future use.  
When moving or removing the projector, give this manual to the certified personnel and have them perform the procedure.
- To installation personnel  
Read the "Installation Instructions" thoroughly and then perform the operation correctly and safely.  
**Be sure to read through the section entitled "Read this first!" (page 3) before proceeding with the installation.**  
After installation, return these "Installation Instructions" to the customer.



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## **WARNING:**

**Installation work should only be carried out by the certified personnel.**

- If this product is not installed correctly, serious accidents may result.
- Follow the instructions specified in "Installation" of this manual, and perform secure installation.

**Do not install in a location that is not strong enough.**

- If the installation location is not strong enough, the unit may fall down and damage to the projector or an injury may result.

**Make sure that your footing is safe and secure during installation.**

- If your footing is not secure, you may fall down or drop the unit, and an injury may result.

**Install the ceiling mount bracket in accordance with the structure and materials of the installation location.**

- If a mistake is made in the installation procedure, the ceiling mount bracket may fall down and an injury may result.

**Do not loosen or remove the unit screws and bolts unnecessarily.**

- The projector may fall down and an injury may result.

**Do not install the ceiling mount bracket in humid or dusty locations or in locations where the ceiling mount bracket may come into contact with oily smoke or steam.**

- Using the projector under such conditions may result in fire or electric shock. Also, the oil will cause the plastic to deteriorate and the projector may fall down when installed on a ceiling.

**Do not allow children to reach the supplied screws and metal fittings.**

- These items can cause personal injury if swallowed.
- If swallowed, seek medical help immediately.

**Mounting and installation must be carried out by two or more persons.**

- Including the projector, this fixture weighs approximately 24 kg (52.9 lbs.). Be sure that mounting and installation are carried out by two or more persons.

**Do not disassemble or modify the ceiling mount bracket.**

- The projector may be damaged or fall down, and an injury may result.

## **CAUTION:**

**Install only the designated projector.**

**Install only using the designated method.**

- Otherwise, the projector may fall and become damaged, and cause injury.

**Do not install the ceiling bracket in a place which may impede projector ventilation.**

- If this is not observed, fire may result.

**Do not hang from or hang objects on the projector or ceiling mount bracket.**

- The projector may fall and cause injury.

**When installing, always use the supplied components.**

- Otherwise, this may cause damaged projector to fall and cause injury.

**Install the mounting screws and power cable in such a way that they will not make contact with the inside parts of the ceiling.**

- Electric shocks may result from contact with any metal objects inside the ceiling.

■ Panasonic Connect Co., Ltd. disclaims all liability for any accidents or any damage caused by the installation of the ceiling mount bracket using methods that are not described in these Installation Instructions or methods that do not use the parts specified in these Instructions.

■ If products are no longer being used, they should be dismantled and removed by the certified personnel as soon as possible.

# Product description

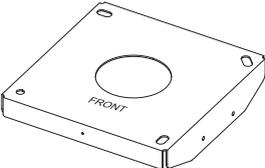
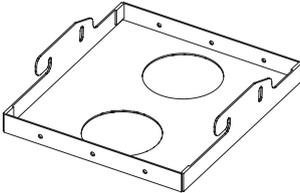
This is a ceiling mount bracket for installing projectors.  
Use this together with the projector mount bracket (sold separately).

## ■ Applicable projector mount bracket

ET-PKE300B, ET-PKD130B, ET-PKD120B

\* Products other than the above may be supported. Refer to the installation instructions for your projector mount bracket.

## ■ Structural components

Parts name	Form (number of parts)	Applications
Attachment plate	 <p style="text-align: right;">× 1</p>	The attachment plate is attached to the ceiling via four ceiling mount bolts. Installation methods are different for concrete and wooden ceilings. It also allows horizontal swing adjustment.
Angle adjusting bracket	 <p style="text-align: right;">× 1</p>	This is the bracket which is installed in between the attachment plate and the projector mount bracket (sold separately).
Screws and bolts	 <p>Hex head bolt, captive washer(M6×16)      × 10</p>	These are used to secure the brackets to the projector.

## Product description (continued)

### ■ The user must also obtain the following parts. (commercially-available)

Installation work		Required parts	Page
Installing the attachment plate to the ceiling (Bolt size: M10)	Installing to a wooden structure	Ceiling mount bolt (× 4), Hex nut (× 16), Flat washer (× 16), Spring washer (× 8)	7
	Installing to a concrete structure	Ceiling mount bolt (× 4), Hex nut (× 12), Flat washer (× 12), Spring washer (× 8), Anchoring nut or curled plug (× 4)	8
Attaching the wire rope to the ceiling (nominal diameter: M8 or M10*)	Installing to a wooden structure	Ceiling mount bolt (× 1), Hex nut (× 2), Flat washer (× 1), Spring washer (× 1)	11
	Installing to a concrete structure	Anchoring nut or curled plug (× 1), Hex head bolt (× 1), Spring washer (× 1)	11

\* When the wire rope is attached using M10 ceiling bolts, anchor nuts or curled plugs, you will need to obtain an extra flat washer with a diameter of 40 mm or more.

- Store small parts in an appropriate manner, and keep them away from small children.
- Tightening torque for the screws are M6:  $4\pm 0.5$  N•m, M8:  $10\pm 1$  N•m, and M10:  $20\pm 1$  N•m.
- When tightening up the screws, use a tool such as a torque screwdriver or torque wrench. Do not use electric screwdrivers or impact screwdrivers.

#### Attention

- Dispose of the packaging materials properly after taking the product out of it.

# Installation

After checking the height, width, and structure of the installation location, determine the appropriate positions for setting up the screen and installing the projector.

## Setting up the screen

Set up the screen according to the specified method in a position which takes into account the projection distance and angle and the type of screen being used.

## Screws tightening torques

M6	.....	4±0.5 N•m
M8	.....	10±1 N•m
M10	.....	20±1 N•m

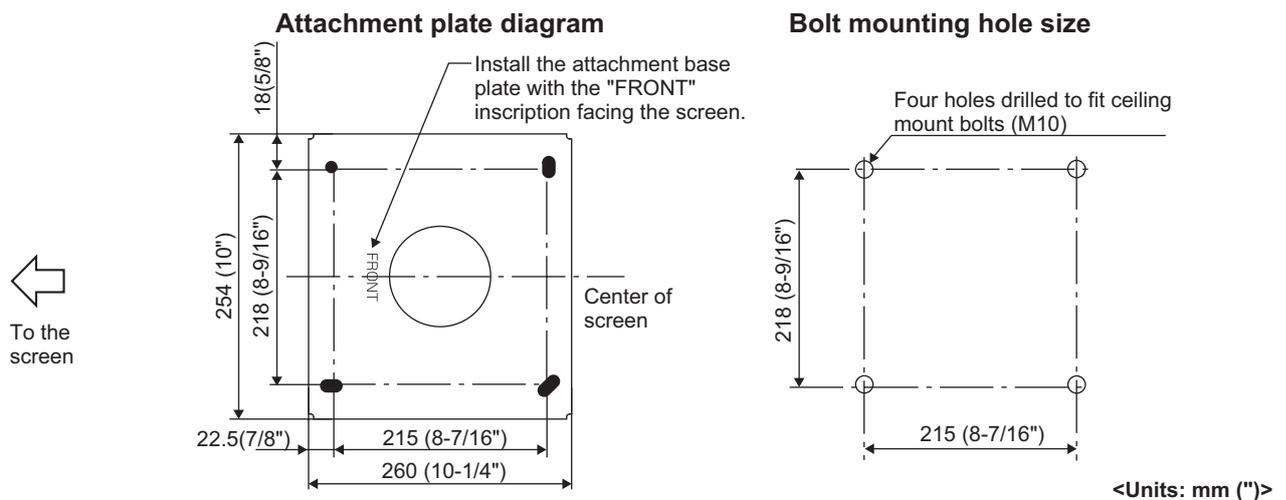
- Use a torque screwdriver or torque wrench to tighten screws and bolts to their specified tightening torques. Do not use electric screwdrivers or impact screwdrivers.

## Installing the attachment plate to the ceiling

After checking the height, width, and structure of the installation location, determine the appropriate positions for setting up the screen and installing the projector.

### ■ Attachment plate mounting hole sizes and preparation

Make mounting holes while referring to the attachment plate diagram.



### Attention

- If attaching to a concrete ceiling, the sizes of the holes for the anchoring nuts or curled plugs should match the sizes specified by the manufacturer.
- Use commercially available M10 ceiling mount bolts, hex nuts, flat washers, spring washers, and anchoring nuts or curled plugs.

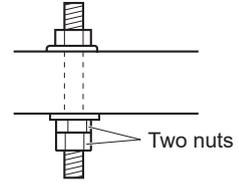
## Installation (continued)

### ■ Installing the attachment plate

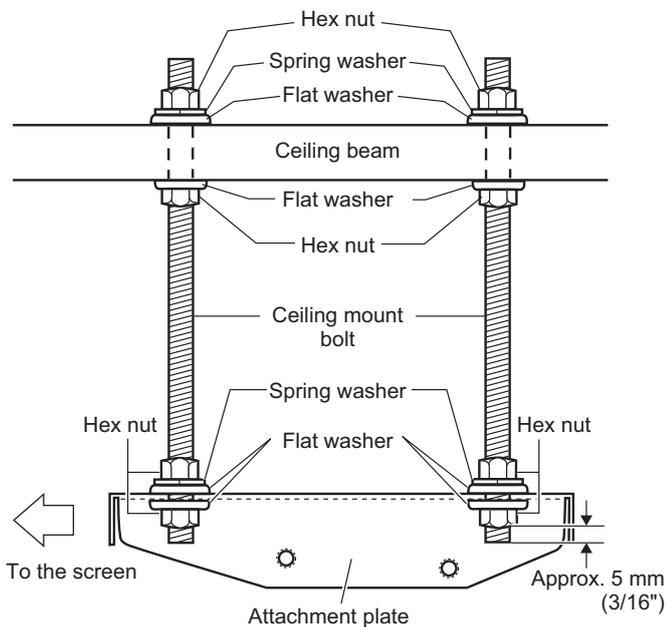
Depending on whether it is installed on a concrete or wooden ceiling structure, there are two different installation methods. Carry out by the appropriate installation method which is suited to each ceiling.

#### Attention

- Make sure to use the ceiling mount bolts, hex nuts, flat washers, spring washers, anchoring nuts or curled plugs for M10.
- All nuts and bolts should be securely tightened, and sufficient measures such as using two nuts or locking the bolts should be employed as necessary to prevent any loosening.



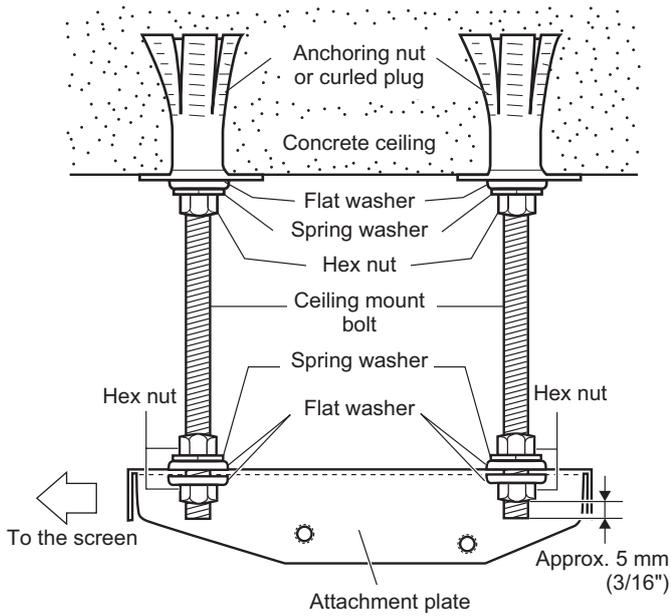
### ● Installing to a wooden structure



- 1) Drill four penetration holes in the ceiling beam for the ceiling mount bolts.
  - Drill the penetration holes with same size as the ceiling mount bolt mounting holes. (Refer to page 6 for hole locations and dimensions.)
- 2) Securely fix the four ceiling mount bolts to the ceiling beam.
  - Confirm that the location to retain the ceiling mount bolts has enough strength to retain the weight of the projector and the ceiling mount bracket. If there is not enough strength, perform sufficient reinforcement considering the safety factor.
- 3) Temporarily secure the attachment plate to the ceiling mount bolts. (It will be permanently secured after adjusting the installation angle in horizontal directions on page 12.)
  - The threaded end of ceiling mount bolt at the attachment plate side should protrude by approx. 5 mm (3/16") from the hex nut. Be sure to use commercially available flat and spring washers to install the attachment plate.

## Installation (continued)

### ● Installing to a concrete structure



- 1) Attach the anchoring nuts or curled plugs to a concrete ceiling and securely fix the four ceiling mount bolts. (Refer to page 6 for attachment positions.)
  - When installing anchoring nuts or curled plugs, strictly adhere to the installation instructions supplied by the manufacturer of the nuts so that they will not loosen in the concrete structure or be dislodged from the intended positions.
  - Check to make sure that the concrete ceiling structure can easily bear the weight of the projector and the ceiling mount bracket. If it is found to be fragile or degraded, use steel or wooden reinforcements.
- 2) Temporarily secure the attachment plate to the ceiling mount bolts.  
(It will be permanently secured after adjusting the installation angle in horizontal directions on page 12.)
  - The threaded end of ceiling mount bolt at the attachment plate side should protrude by approx. 5 mm (3/16") from the hex nut. Be sure to use commercially available flat and spring washers to install the attachment plate.

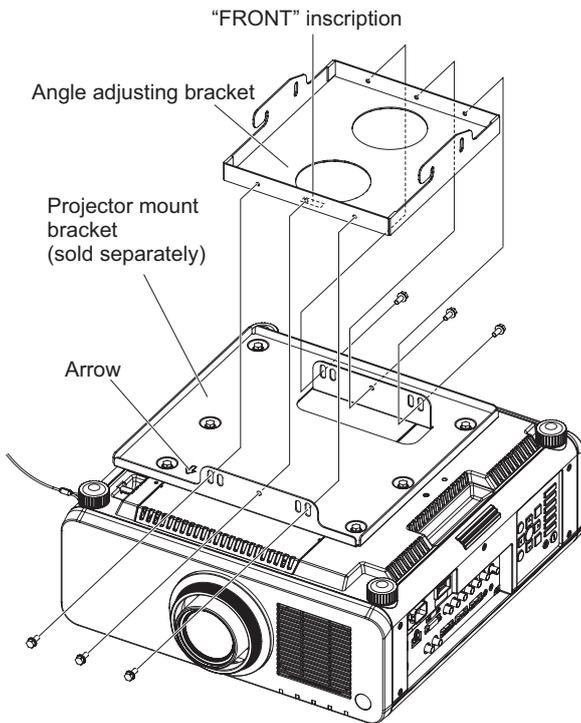
## Installation (continued)

### Installing the bracket to the projector

Install the angle adjusting bracket to the projector mount bracket (sold separately) that is pre-installed to the projector (sold separately).

#### Note

- The illustration depicts an ET-PKD120B projector mount bracket as an example. The installation procedure is the same for other projector mount bracket models.



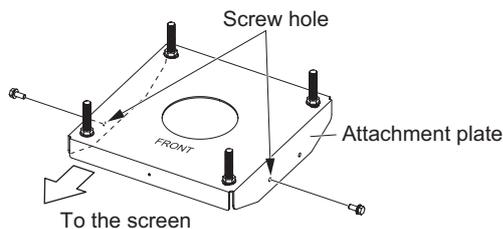
Secure the angle adjusting bracket to the projector mount bracket using the six supplied captive washer screws (M6 x 16) as illustrated on the left.

#### Note

- The shape of the screw mounting section may differ depending on the model of the projector mount bracket (sold separately).
- For installing the projector mount bracket (sold separately) to the projector, refer to the installation instructions for the projector mount bracket.

### Suspending the projector

Suspend the projector from the attachment plate installed to the ceiling.

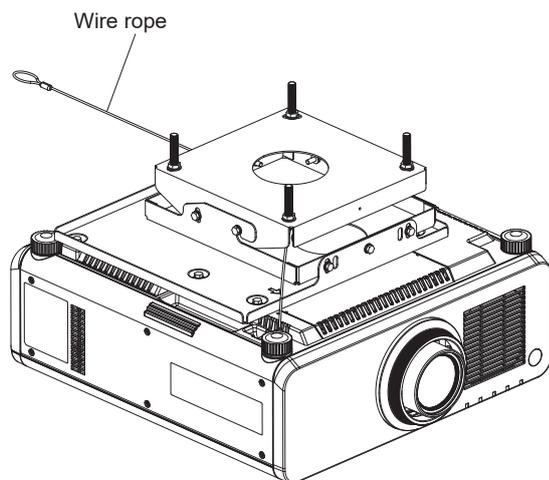
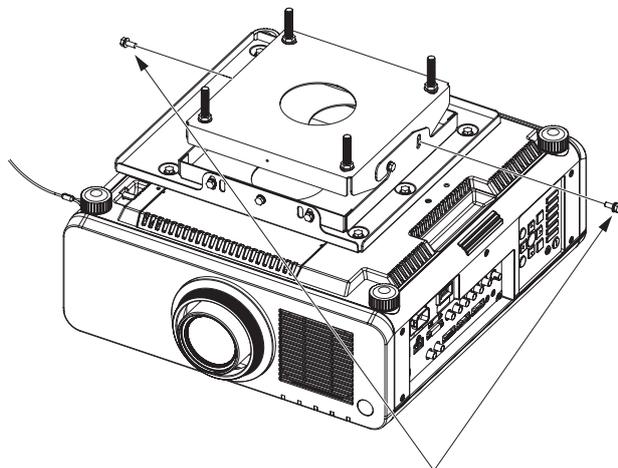
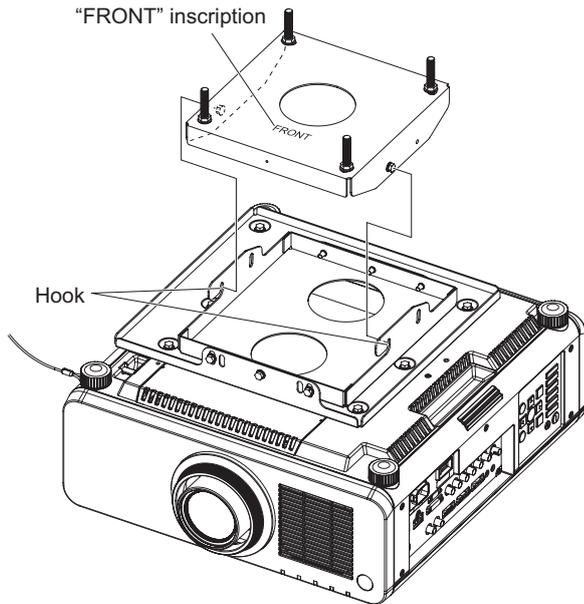


- 1) Screw the supplied two captive washer hex head bolts (M6 x 16) half way into two opposite side bolt holes in the attachment plate, on the forward side nearest the screen.

#### Attention

- Make sure that the thread ridges of the temporarily fastened captive washer hex head bolts are tightly engaged with the screw holes on the attachment plate.

## Installation (continued)



- 2) Insert the temporarily fastened captive washer hex head bolts on either side into the hook section of the angle adjusting bracket.

### Attention

- Hold the projector firmly until the captive washer hex head bolts are securely placed in the hook part of the angle adjusting bracket.

### WARNING:

**Mounting and installation must be carried out by two or more persons.**

- 3) Secure the angle adjusting bracket to the attachment plate using the supplied two captive washer hex head bolts (M6 × 16), as illustrated on the left.

### Attention

- After adjusting the installation angle on pages 12 to 13, securely tighten the captive washer hex head bolt of the attachment plate in four places on right and left.

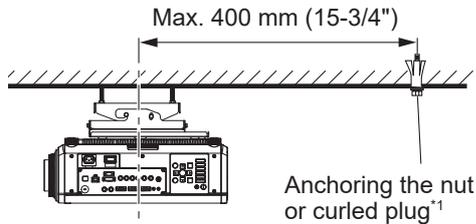
- 4) Pass the wire rope between the angle adjusting bracket and the attachment plate as illustrated on the left.

# Installation (continued)

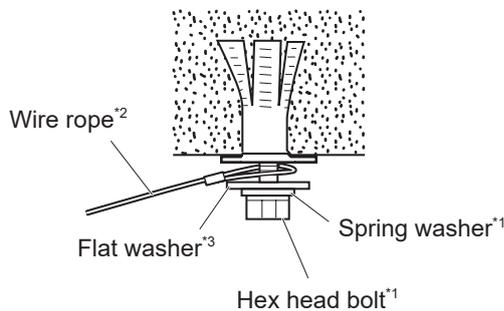
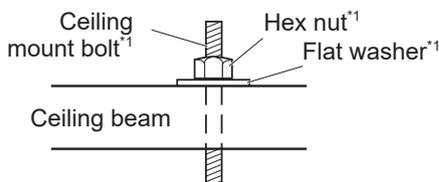
## Attaching the wire rope to the ceiling

Attach the other end of the wire rope attached to the projector to the ceiling.

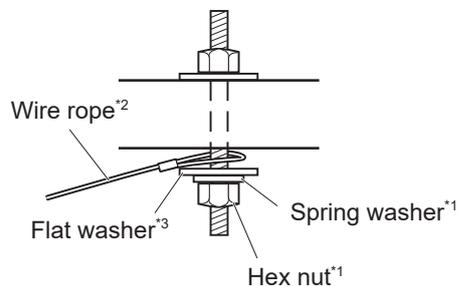
\*These instructions assume installation in a concrete ceiling and use of M8 ceiling bolts, anchor nuts and curled plugs. When M10 ceiling bolts, anchor nuts or curled plugs are used, you need to obtain a commercially available flat washer with a diameter that is 40 mm or larger instead of the flat washer supplied with the projector mount bracket.



### ● Installing to a wooden structure



### ● Installing to a wooden structure



1) Mount the anchoring nut or curled plug (M8) in the concrete ceiling (at a single point within the area shown in the diagram on the left).

- If it is to be attached to a wooden surface, drill one penetration hole in the ceiling beam for the ceiling mount bolt, and secure the ceiling mount bolt using the flat washer (M8)<sup>\*3</sup> and a commercially available hex head bolt (M8).

### Attention

- When mounting the anchoring nut or curled plug (M8) to the ceiling, be careful that there is no slack in the wire rope between the projector and the ceiling.

2) Tighten the commercially available hex head bolt (M8) to the anchor, passing it through the commercially available spring washer (M8), the flat washer (M8)<sup>\*3</sup>, and the ring of the end of the wire rope.

- If it is to be attached to a wooden surface, pass the ceiling mount bolt through the ring at the end of the wire rope as shown to the left, and secure it firmly to the ceiling beam.

### Attention

- Purchase the commercially available anchoring nut or curled plug, hex head bolt, and spring washer.

### Note

- For attaching the wire rope to the projector, refer to the installation instructions for the separately sold projector mount bracket.

\*1: Commercially available product

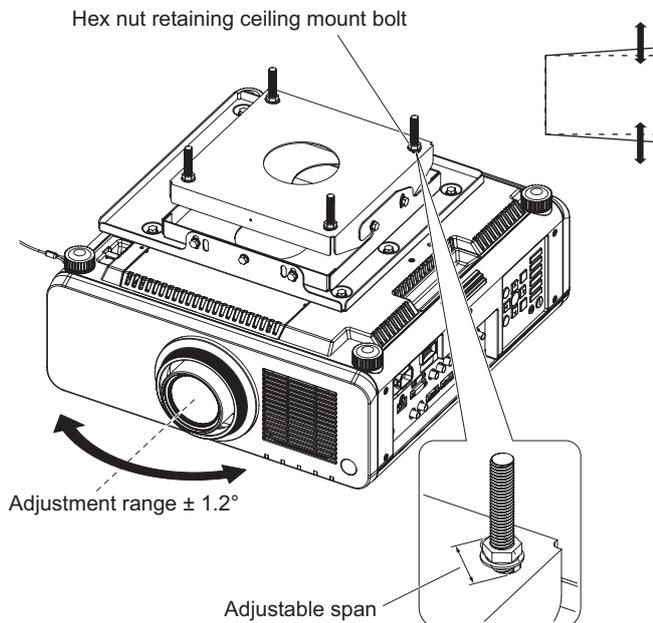
\*2: Supplied with the optional projector mount bracket

\*3: Use commercially available fasteners or those supplied with the optional projector mount bracket. (40 mm in diameter or wider)

# Adjusting the installation angle

- This ceiling mount bracket allows adjustment through horizontal rotation, and horizontal and vertical tilt. Adjustments should be carried out in order to make the center of the projector lens perpendicularly to the surface of the projection screen.
- While referring to the operating instructions for the projector, project a picture onto the screen and then adjust the picture size and focus. After making these adjustments, adjust the ceiling mount bracket angle.

## ■ If the top and bottom edges of the picture are not parallel (horizontal swing adjustment)

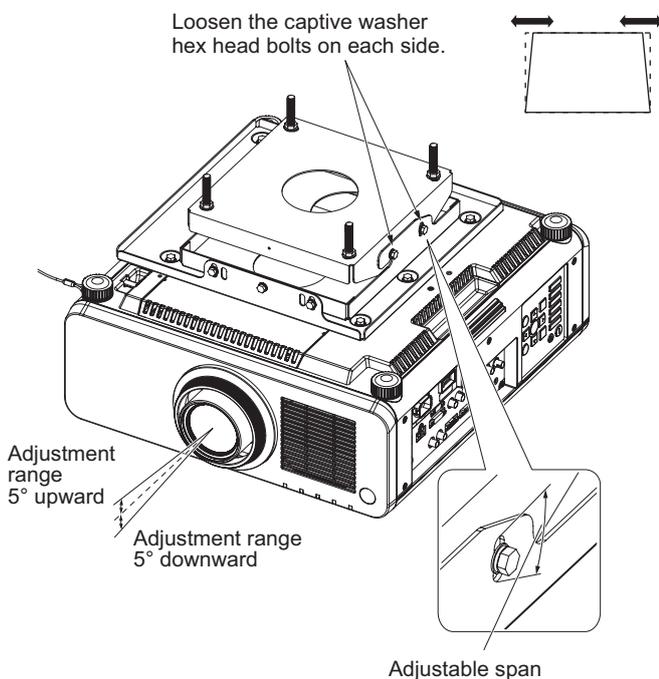


- Loosen the four hex nuts retaining the attachment plate to the top ceiling mount bolts, then swivel the projector head horizontally until the picture is centered on the screen.
- Once the picture position has been set, be sure to retighten the nuts securely.

### Attention

- Do not over-loosen the hex nut fixing the ceiling mount bolt on the top side of the attachment plate. Otherwise, the projector may fall off.
- Adjust using the lens shift when the center of the screen and center of the projector does not align.

## ■ If the right and left edges of the screen are not parallel (vertical tilt adjustment)



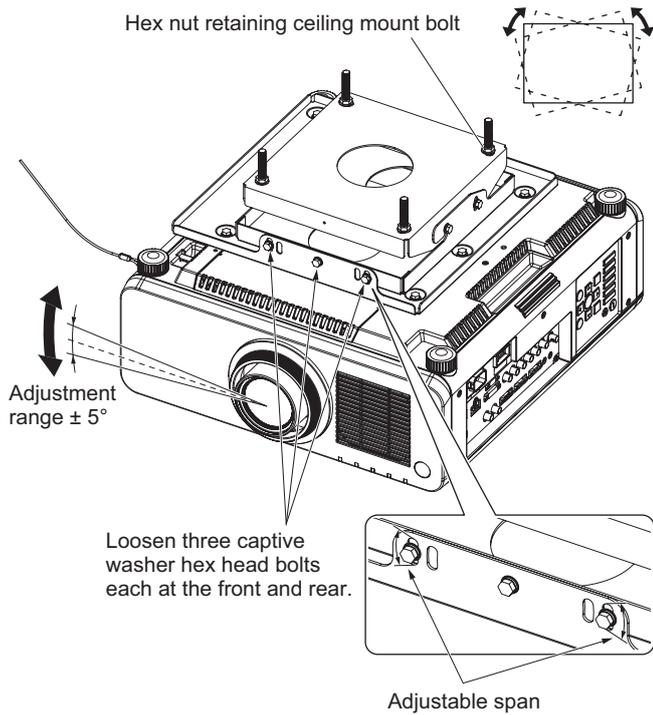
- Loosen the four captive washer hex head bolts (two on each side) that attach the angle adjusting bracket to the attachment plate, then tilt the back of the projector vertically until the picture is centered on the screen.
- Once the picture position has been set, be sure to retighten the bolts securely.

### Attention

- Do not over-loosen the captive washer hex head bolts, which are used to secure the angle adjusting bracket to the attachment plate. Otherwise, the projector may fall off.

## Adjusting the installation angle (continued)

### ■ If the picture is tilted to the right or left (horizontal tilt adjustment)



- Adjust to the position where the picture is not tilted by loosening the captive washer hex bolts fixing the projector mount bracket and the angle adjusting bracket (three locations in front and rear), and rotating the projector.
- Once the picture position has been set, be sure to retighten the bolts securely.

#### Attention

- Do not over-loosen the captive washer hex head bolts, which are used to secure the angle adjusting bracket to the projector mount bracket. Otherwise, the projector may fall off.

#### Attention

- After checking the position adjustments, check that the screws have been tightened to the torques specified on page 6.

#### Note

- If there is a keystone effect in the image even after adjusting the installation angle in the [POSITION] menu of the projector without applying keystone correction, the positional relationship between the screen and the projector is out of alignment. Check that the projector is facing the screen. Alternatively, perform the keystone correction at the projector.
- The wire rope is not shown in the illustration.

# Specifications

Range of adjustment	Horizontal swing angle	$\pm 1.2^\circ$
	Vertical tilt angle	5° upward, 5° downward
	Horizontal tilt angle	$\pm 5^\circ$
External dimensions	Width: 258.4 mm (10-3/16") Height: 80 mm (3-5/32") Depth: 286 mm (11-1/4")	
Weight	Approx. 3 kg (6.6 lbs.)	

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**Panasonic Connect Co., Ltd.**

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SS0513AM3042 -PS  
Printed in Japan