YAMAHA

Conference System General Catalog

*Project**Phone*

All ears and attention
To the new style of Remote Communication

Y a m a h a   C o n f e r e n c i n g   S y s t e m

Product Lineup

Audio

IP Audio Conference System
PJP-100H

IP Audio Conference System
PJP-50R

Multipoint Audio Control Unit
PJP-MC24

PC

Conference Microphone Speaker
PJP-100UH

Conference Microphone Speaker
PJP-50USB

Conference Microphone Speaker
PJP-25UR

Video

Video Conference System
PJP-300V

Projectphone Fisheye
PJP-CAM1

INDEX

IP Conference System Web site **http://www.yamaha.co.jp/english/product/projectphone/**

For details please contact:

YAMAHA
CREATING 'KANDO' TOGETHER

YAMAHA CORPORATION
P. O. Box 1, Hamamatsu, Japan

MPJPSE002J   Printed in Japan

ProjectPhone

A new shape of conference system to come.
With the sound of Yamaha.

Easy on the listeners.
Easy on the talkers.

Easy on the listeners. Easy on the talkers. It is Yamaha's definition on what a high-performance conference system should be. Yamaha Projectphone embodies the new shape of conference systems to come with the sound of Yamaha. And it's all part of Yamaha's tradition of superb quality sound.
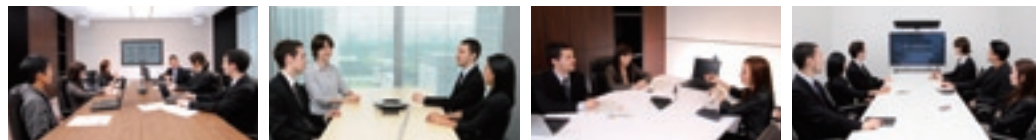
Conference system product lineup

Model		IP Audio Conference System PJP-100H page 06	IP Audio Conference System PJP-50R page 08	Conference Microphone Speaker PJP-100UH page 14	Conference Microphone Speaker PJP-50USB page 16	Conference Microphone Speaker PJP-25UR page 18	Video Conference System PJP-300V page 20	Projectphone Fisheye PJP-CAM1 page 22
Audio	IP	★★★	★★★					
	PSTN (analog phones)		★★★					
PC	Microphone speaker			★★	★★★	★★★	★★★	
	Camera						★★	★★★
Video	Dedicated						PJP-VC1 page 20 ★★★ *	

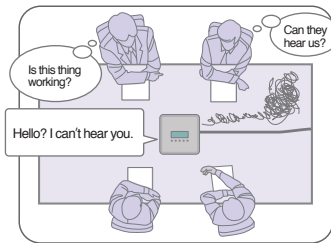* Used in combination with the PJP-VC1(B) Codec Box for IP Video Conferencing

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## Problems with conventional conference systems | ProjectPhone The Projectphone solution

01- Talker's voice not picked up clearly.

#### ► High performance audio pickup (arrayed microphones)

Arrayed microphones pick up conference participant voices reliably. The Projectphone picks up the typical exchanges that occur during meetings so accurately and smoothly that conference participants hardly notice its presence. Also, the arrayed microphones sense the delay when receiving sound to automatically detect the location of its source. By varying the pickup range, the Projectphone minimizes ambient noise to provide a clear conference experience.

Sound source
Delay when receiving sound
DSP signal processing
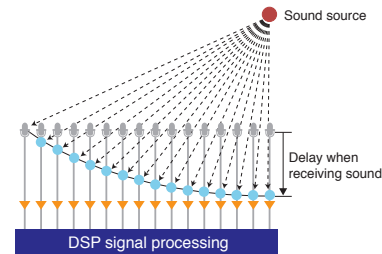
* Supporting products: PJP-100H, -50R, -100UH, -50USB, -300V

02- Can't hear the person on the other end

#### ► Advanced sound reproduction (Sound acoustic design)
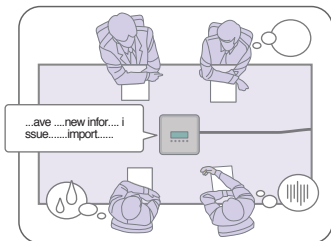
The Projectphone controls arrayed speakers to produce a point audio source, and features an acoustic design that accounts for the orientation of conference desks and chairs. It enables listenable audio output using a horn loading effect created by a synthesized acoustic wavefront

Cross section
Virtual sound source
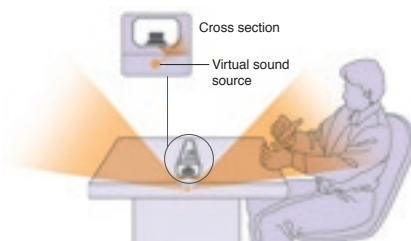
* Supporting products: PJP-100H, -50R, -100UH, -50USB

03- Echo and audio cut-out makes it hard to hear

► Elimination of audio cut-out and echo (adaptive echo canceller)
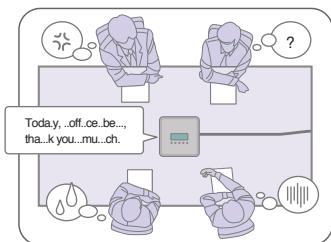
Echo can occur in an audio conference system when the microphones pick up the audio reproduced from the speakers. To counter this, the Projectphone incorporates a high-performance adaptive echo canceller that eliminates any of its own sounds that it may pick up. Combining this furthermore with a design that minimizes feedback of reproduced sound, it offers smooth full-duplex performance that is easy on both the listeners and talkers.

Hello
PJP Net-work PJP
How are you?
Hello
Echo cancelling
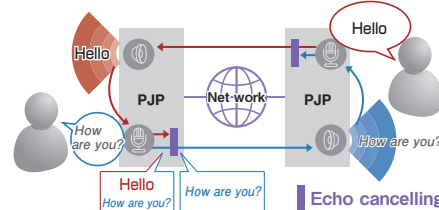
## Using Yamaha Projectphone Conference Systems

Type 01 Audio (IP) page 04

Easily set up a high sound quality voice conference over with VPN or corporate LAN.

Simply by connecting the Projectphone to your corporate LAN, you can easily open a high sound quality voice conference with remote locations.

■ Relevant products

IP Audio Conference System	PJP-100H	page 06
IP Audio Conference System	PJP-50R	page 08

Location A   Location B
Internet, corporate LAN, etc.
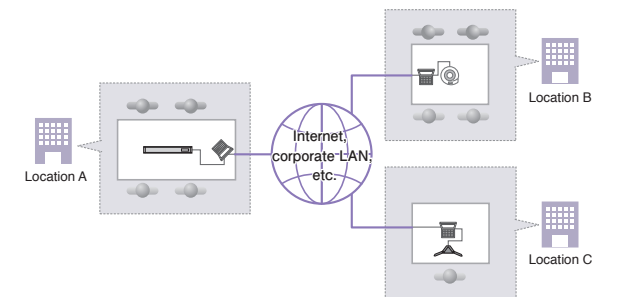Location C
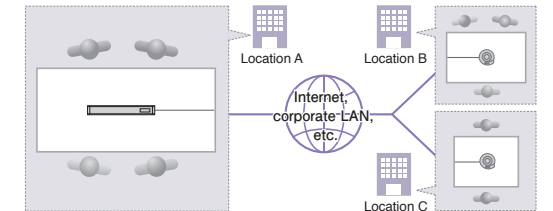
Type 02 PC page 12

Microphone Speaker Ideal for Web Conferencing

The communication functions of PCs can be used for Web conferences* and softphones** between remote locations to not only share images and audio, but also data and applications. Incorporating the Projectphone with its built-in high performance echo canceller as a microphone speaker enables you to utilize Web conferences/softphones more effectively.

* A Web conference system exchanges visual images and sound between locations by using communication features on the PC, and is a collective term for a remote conferencing system that enables you to share data and applications on PC. For simplicity, any conferencing systems or services using the communication features of the PC in this catalog are classified as Web Conference systems.
** A collective term for internet telephony via PC. making calls over the Internet on a PC.

■ Relevant products

Conference Microphone Speaker	PJP-100UH	page 14
Conference Microphone Speaker	PJP-50USB	page 16
Conference Microphone Speaker	PJP-25UR	page 18

Location A
Internet, corporate LAN, etc.
Location B
Location C

Type 03 Video

This conference system utilizes the Internet or corporate LAN to provide two-way audio/video communication.

By adding on the PJP-VC1, the PJP-300V can be used as a video conference system that connects locations through images and sound.

■ Relevant products

Video Conference System	PJP-300V	page 20
Projectphone Fisheye	PJP-CAM1	page 22

Location A
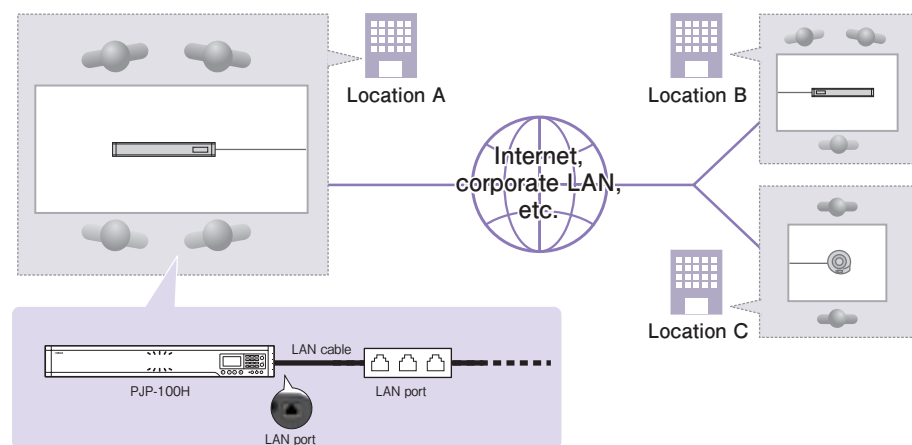Internet, corporate LAN, etc.
Location B
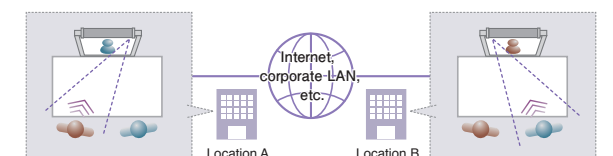
IP Audio Conference System

The PJP-100H and PJP-50R are audio conference systems featuring Yamaha's IP communication technology, designed to ease the remote audio conferencing experience for both talkers and listeners.

How to use

Audio conference between remote locations can be started immediately by connecting to an existing corporate LAN,* and allocating an IP address to the PJP-100H/PJP-50R. Simply by entering the IP address of the party you wish to reach, you can experience the high-fidelity audio conferencing with ease, just like a telephone call.

*An established network, having open 5060 (UDP) ports for SIP and 57000 to 57010 (UDP) ports for RTP/RTCP.

Location A

Location B

Internet, corporate LAN, etc.

Location C

PJP-100H

LAN cable

LAN port

LAN port

LAN port

Applications and benefits of the IP audio conference system.

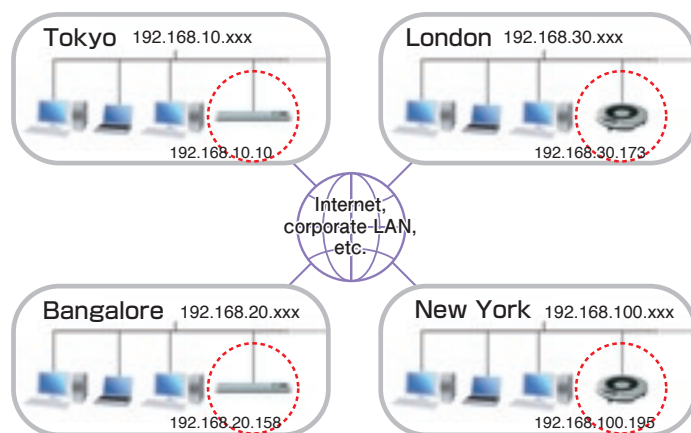### For multi-location corporate communications.
The PJP-100H/PJP-50R are audio conference systems with built-in IP communication features. There is no call/communication charge when utilizing a existing corporate LAN.

Easy multipoint connections.
The PJP-100H/PJP-50Rs multipoint connection function supports simultaneous connections of up to 8 locations. With the PJP-MC24 multipoint audio control unit, you can connect up to 24 locations simultaneously by using an existing corporate LAN. Unlike an expensive multipoint telephone service, this can be done free of charge since it uses a IP connection.

Start a conference instantly.
Video conferencing systems tend to require a designated room along with complicated settings. But with their integrated microphone speakers, the PJP-100H/PJP-50R are portable and easy to set up, enabling remote conferencing anytime, anywhere.

Tokyo   192.168.10.xxx

192.168.10.10

London   192.168.30.xxx

192.168.30.173

Internet, corporate LAN, etc.

Bangalore   192.168.20.xxx

192.168.20.158

New York   192.168.100.xxx

192.168.100.198

PJP-100H

Microphones	Speakers	Connecting Terminal
32	12	LAN Audio I/O

Pickup rng*
Rec **2 m**
Max **5 m**

* Varies depending on communication methods and environment.

page 06

PJP-50R

Microphones	Speakers	Connecting Terminal
16	4	LINE LAN Audio I/O

Pickup rng*
Rec **2 m**
Max **5 m**

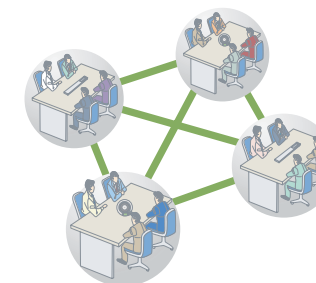* Varies depending on communication methods and environment.
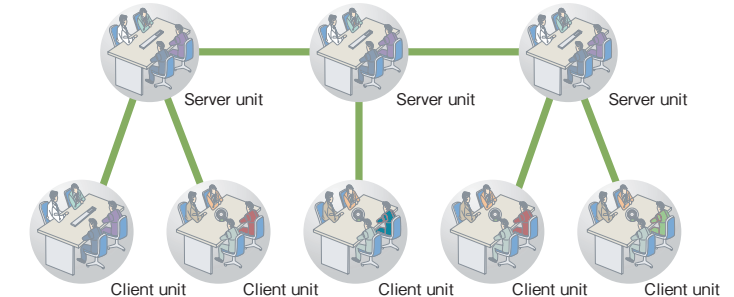
page 08

Connect up to 8 locations

The PJP-100H/PJP-50R supports audio conferences up to 8 locations without an MCU (multi-point control unit). The PJP-100H/PJP-50R support audio conferences up to 8 locations without an MCU. They are able to connect 4 locations with a mesh connection and 8 locations with a cascade connection.

A free PC software program for easy configuration of multi-location connections is available. See Tips on page 06 for details.

Mesh connection (Max. 4 locations)

Cascade connection (Max. 8 locations)

Server unit   Server unit   Server unit

Client unit   Client unit   Client unit   Client unit   Client unit

Linking with the PJP-MC24 multipoint audio control unit

The PJP-MC24 can further enhance the effectiveness of the PJP-100H and PJP-50R operations.
· Open simultaneous connections with up to 24 locations
· "Convener" function for summoning conferences from a Web browser
· Manage extensions and usage status with SIP server functions

page 10

Linking with IP-PBX and SIP servers

Linking SIP with the NEC SV7000
The PJP-100H/PJP50R can be used as extensions under IP-PBX by linking with NEC SV7000 (NEC's UNIVERGE SV7000 SIP telephony server).

* The PJP-100H and PJP-50R are UNIVERGE certified products.
* Please inquire about SIP-linking with a IP-PBX other than the NEC SV7000.
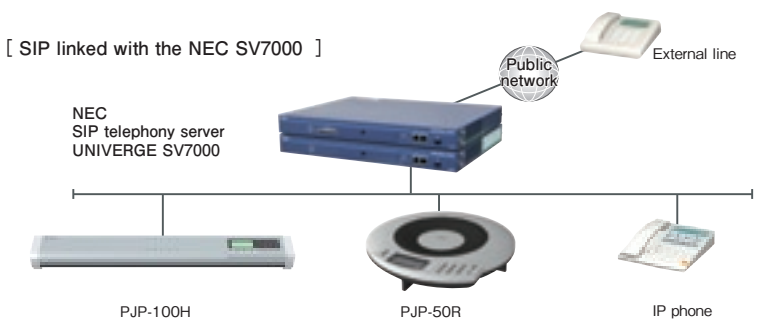
Use as an inside phone line
IP-PBX and SIP server can assign extension numbers to both PJP-100H and PJP-50R. You can call other conference participants by dialing the extension number instead of an IP address along with call business phones.

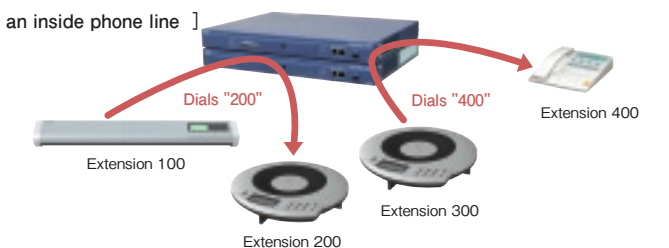### Audio conferencing with participants outside of the company
IP-PBX and SIP server connect with external lines to enable participants to join a conference through the telephone, without needing audio conferencing system terminals.

UNIVERGE CERTIFIED

[SIP linked with the NEC SV7000]

Public network

External line

NEC
SIP telephony server
UNIVERGE SV7000

PJP-100H   PJP-50R   IP phone

[Use as an inside phone line]

Dials "200"   Dials "400"

Extension 400

Extension 100

Extension 200

Extension 300

[Audio conferencing with participants outside of company]

Public network

External line
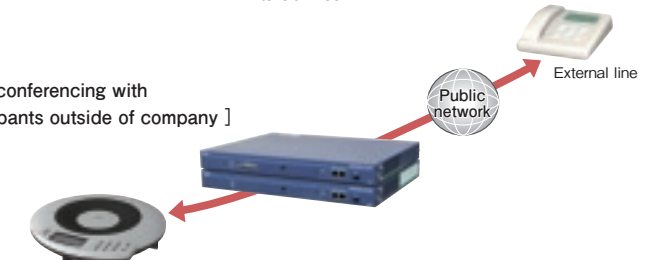
Notes on linking with UNIVERGE
* When the PJP-100H/PJP-50R are linked with the SV7000, the multi-point connection function of the PJP-100H and PJP-50R are unavailable. An SV7000 VS-32 is required for multi-point connections.
* The PJP-100H/PJP-50R's hold and forward functions cannot be used (holding and forwarding allowed from other terminals).
* Calls using the IP call function cannot be made between a PJP-100H/PJP-50R that is linked with an SV7000 and one that is not.

Links
◎ The information such as conditions of use is listed on the website. See below URL for more details.
http://www.yamaha.co.jp/english/product/projectphone/howto/ipphone/ippbx.html

PJP-100H(S)

PJP-100H Product Information Page:
http://www.yamaha.co.jp/english/product/projectphone/products/100h/

IP audio conference system with built-in communication features,
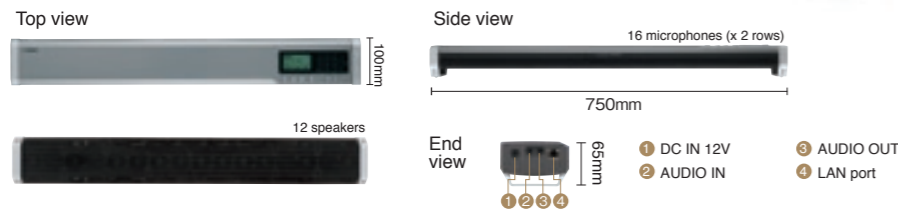able to connect to broadband and corporate LANs.

Made in Japan

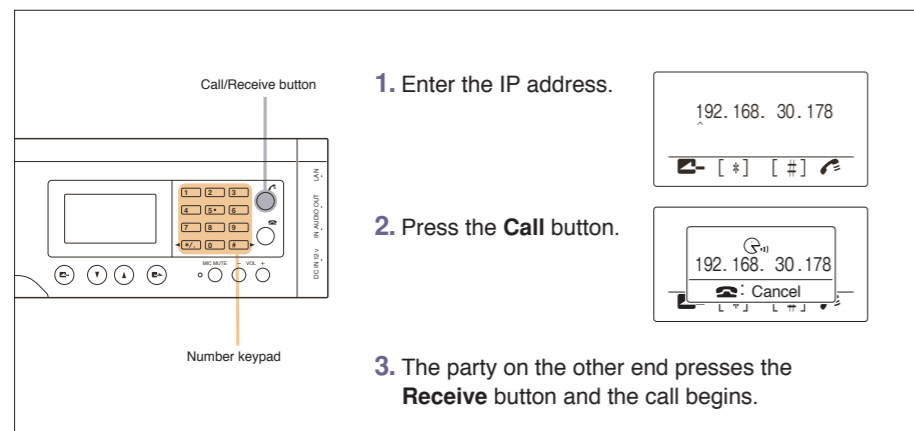## External dimensions and names of parts

Top view

Side view

16 microphones (x 2 rows)

100mm

750mm

12 speakers

End view

65mm

① DC IN 12V
② AUDIO IN
③ AUDIO OUT
④ LAN port

① ② ③ ④

Main features

Point 01	**Realistic sensations that only an IP connection can offer**
Point 02	**Adaptive echo canceller for use in any kind of room**
Point 03	**Divide mode**
Point 04	**Pickup modes for a variety of conference situations**

PJP-100H capabilities

By assigning an IP address to the PJP-100H and connecting it to your corporate LAN, you can hold voice conferences with up to eight locations without an MCU (multi-point control unit). Multipoint audio conferences can be held easily by entering a destination IP address and opening a call connection.
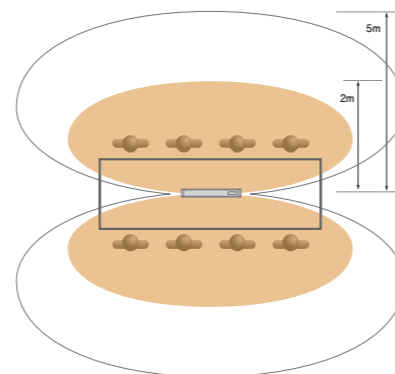
To call another party

Call/Receive button

Number keypad

1. Enter the IP address.

192.168. 30.178

2. Press the **Call** button.

192.168. 30.178

Cancel

3. The party on the other end presses the **Receive** button and the call begins.

Functions

Microphones	Speakers	Mesh connections	Cascade connections	Max. volume
32	**12**	Max.**4**	Max.**8**	**85dB**

Pickup rng*
Rec **2 m**
Max **5 m**

* Varies depending on communication methods and environment.

Adaptive echo canceller	Noise reduction	SIP compliant	Zone pickup	Spot pickup
Divide mode	Supports RoHS	Firmware rev. upgrading		

Applications

Audio (IP)

Interfaces

LAN port　**AUDIO IN/OUT**

Pickup range image

5m

2m

* Varies depending on communication methods and environment.

Realistic sensations that only an IP connection can offer

PJP-100H offers 7 kHz of voice bandwidth, or approximately twice that of analog phone lines (3.4 kHz). Because the PJP covers almost all frequencies of the human voice, it creates a realistic conferencing experience where you know who is talking simply by their voice.

* Supporting products: PJP-100H, PJP-50R

Adaptive echo canceller for use in any kind of rooms

Projectphone's adaptive echo canceller studies the operating environment and automatically adjusts the echo-filter factor accordingly. And since it performs well in many different acoustic conditions, you can easily hold conferences in whichever room or space available.
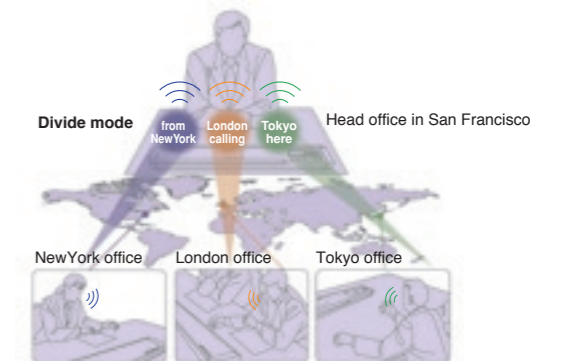
Small rooms　Rooms with high reverberation　Open spaces
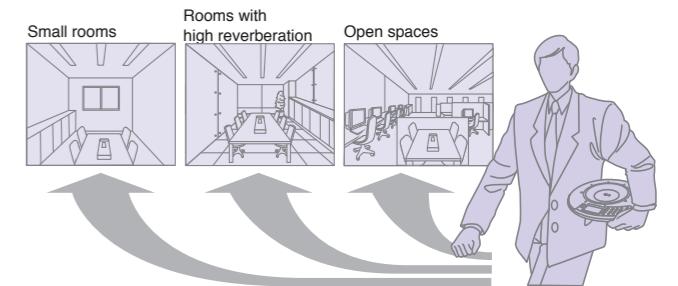
Divide mode
Easily distinguishable voices without crossing, even during multi-location conferences

Voices can be reproduced from different speakers according to the locations of the talkers. Outputs without crossing not only make voices easily audible, but also enable easy identification of the location of the current talker.

* Only available when connecting a PJP-100H/PJP-50R with a mesh connection (IP).
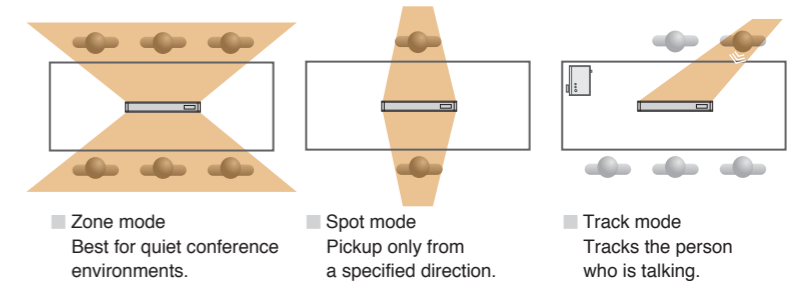
Divide mode　from New York　London calling　Tokyo here　Head office in San Francisco

NewYork office　London office　Tokyo office

Pickup modes for a variety of conference situations

Arrayed microphones can identify the location of the sound and adjust the pickup range. Even in noisy environments (such as open spaces and rooms with projectors), they can isolate the talker's voice and clearly transmit it to the listening party.

* Supporting products: PJP-100H, PJP-100UH, PJP-50R

■ Zone mode
Best for quiet conference environments.

■ Spot mode
Pickup only from a specified direction.

■ Track mode
Tracks the person who is talking.

Topics | Calling between multiple locations

The PJP-100H enables simultaneous calls with up to 8 locations, and if necessary, allows you to call a new location during an existing call. To open a call between multiple locations, simply call the first location, then call the next location after the first call has been established.

Location1　Location2
Established call
New call
Call any new location during an established call. (or receive a new call)
Location3

Location1　Location2
Established call
Established call
Established call
When location 3 presses the call **Receive** [icon] button, the call is connected between all three locations.
Location3
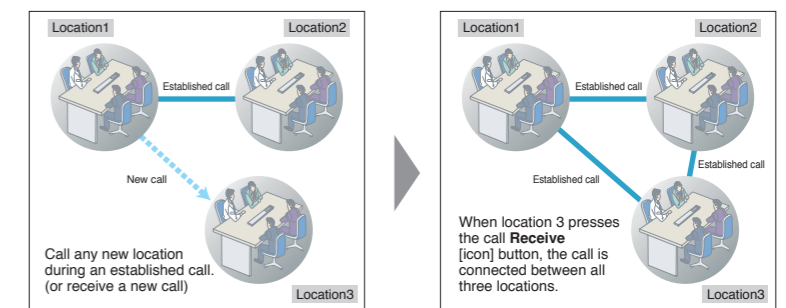
PJP-50R (S)

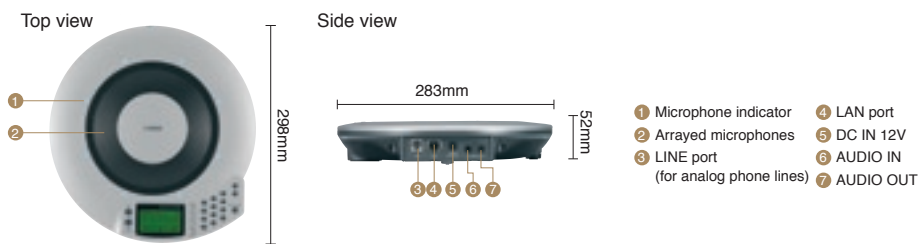## LAN port, LINE port, and AUDIO IN/OUT terminals provide a voice conference system that is suitable for a variety of uses.

Made in Japan

Functions

Microphones	Speakers	Mesh connections	Cascade connections	Max. volume
16	4	Max.4	Max.8	85dB

Pickup rng*				
Rec 2 m Max 5 m	* Varies depending on communication methods and environment.			

Adaptive echo canceller	Noise reduction	SIP compliant	Zone pickup	Spot pickup
Microphone auto tracking	Talker position reproduction mode	Divide mode	Supports RoHS	Firmware rev. upgrading

Applications

Audio (IP)	Audio (PSTN)
PC (microphone speaker)	

Interfaces

LINE port	LAN port
AUDIO IN/OUT	

Pickup range image

5m
2m

Cascade Connection Example

You can expand the pickup range by daisy-chaining PJP-50R's with audio cables. PJP-50R can also be linked up with the PJP-100H/PJP-100UH for use by a large number of people, and in various other circumstances.

*IP, PSTN only

PJP-50R   PJP-50R

PJP-50R   PJP-100H

External dimensions and names of parts

Top view   Side view
283mm
298mm   52mm

① Microphone indicator
② Arrayed microphones
③ LINE port (for analog phone lines)
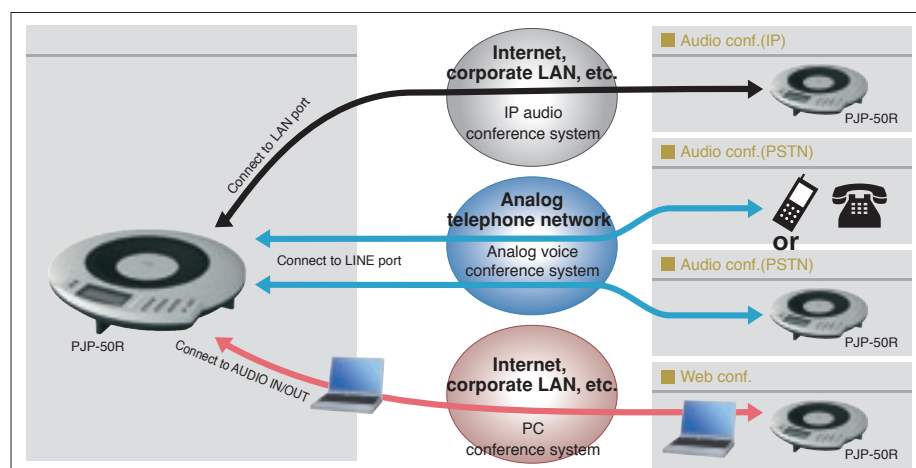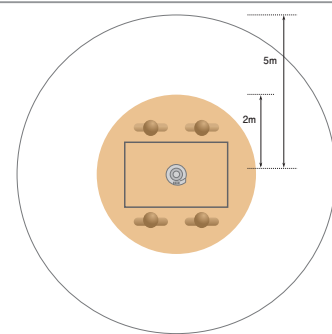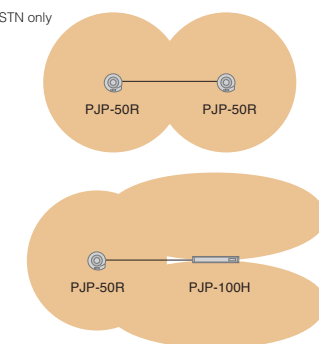④ LAN port
⑤ DC IN 12V
⑥ AUDIO IN
⑦ AUDIO OUT

Main features

Point 01 A wide selection of terminals support many types of conferences

Point 02 Integrated audio mixer enables conferencing with mixed line types

Point 03 Talker position reproduction makes even multiperson conferences easy to follow

PJP-50R capabilities

The PJP-50R offers broad line type support with LAN, LINE, and AUDIO (IN/OUT) ports.

- Internet, corporate LAN, etc. — IP audio conference system — Audio conf.(IP) — PJP-50R
- Analog telephone network — Analog voice conference system — Audio conf.(PSTN) — or — Audio conf.(PSTN) — PJP-50R
- Internet, corporate LAN, etc. — PC conference system — Web conf. — PJP-50R

Connect to LAN port
Connect to LINE port
Connect to AUDIO IN/OUT
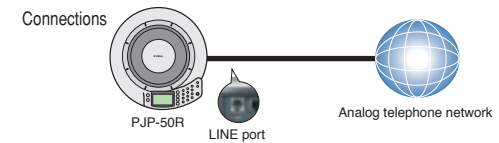PJP-50R

Point 01

A selection of terminals support many types of conferences

PJP-50R has three built-in terminals. The LAN port provides high sound quality conferencing between Projectphones. The LINE port (for analog phone lines) facilitates calls with land line phones, cell phones, and analog phone terminals. And to connect to a PC as a microphone speaker for Web conferencing or "soft phone" use, you can use the AUDIO (IN/OUT) port. PJP-50R offers a multiinterface voice conference system that can be used in various ways according to the application.
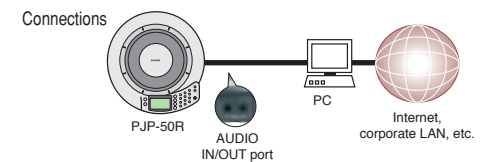
Multifunctional, high-fidelity IP connection
(Connect to LAN port)

Connections
LAN cable
PJP-50R LAN port Internet, corporate LAN, etc.
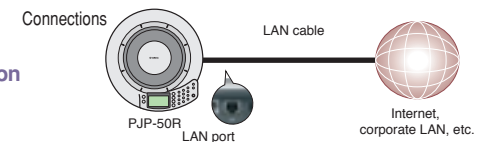
Connects with land line and mobile phones
(Connect to LINE port)

Connections
PJP-50R LINE port Analog telephone network

Connects to a PC with an audio cable
(Connect to AUDIO IN/OUT port)

Connections
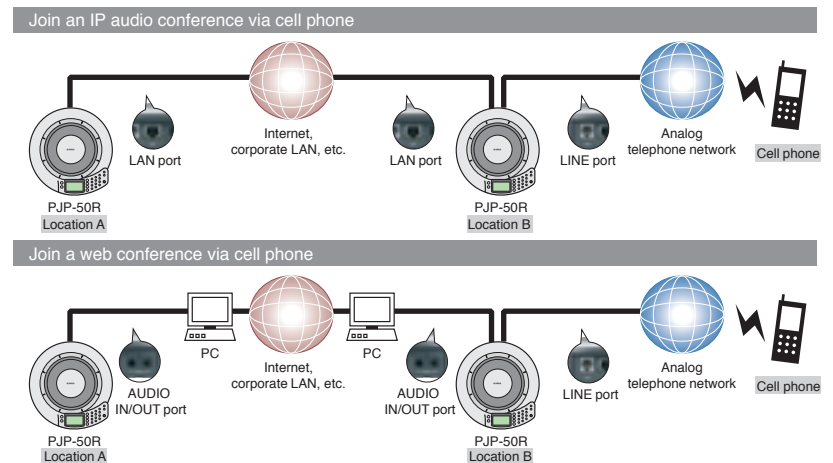PJP-50R AUDIO IN/OUT port PC Internet, corporate LAN, etc.

Point 02

Integrated audio mixer enables conferencing with mixed line types

With its various connectors, PJP-50R can open calls with simultaneous IP, analog phone, and audio connections. Parties away from the office can join IP audio conferences from their cell phones, or join Web conferences from a telephone (voice only).
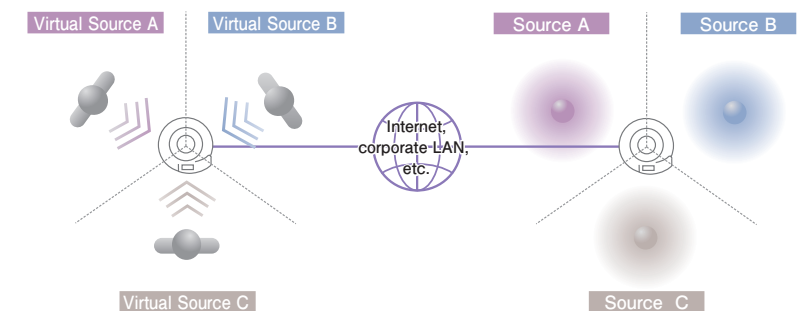
* Participant can talk with location A by cell phone through PJP-50R at location B

Join an IP audio conference via cell phone

PJP-50R Location A LAN port Internet, corporate LAN, etc. LAN port PJP-50R Location B LINE port Analog telephone network Cell phone

Join a web conference via cell phone

PJP-50R Location A AUDIO IN/OUT port PC Internet, corporate LAN, etc. PC AUDIO IN/OUT port PJP-50R Location B LINE port Analog telephone network Cell phone

---

Point 03

Talker position reproduction makes even multiperson conferences "easy on the listeners"

Microphone array's talker detection function and the speaker array's virtual sound source generation function combine to facilitate the "talker position reproduction mode", which modifies audio output according to the seating arrangement of the callers. Sound is output to different positions making it easy to distinguish between multiple voices (up to three talkers per location over a two-location IP conference).

Virtual Source A   Virtual Source B   Source A   Source B
Internet, corporate LAN, etc.
Virtual Source C   Source C

Topics | Easy setup from a Web browser

The PJP-100H/PJP-50R lets you enter settings either directly on the unit, or via a Web browser. Just enter the IP address of the PJP-100H/PJP-50R in the Web browser to call up the settings screen. Whether configuring audio, SIP, or other communications, you can enter all settings right on the screen. The ability to view and edit settings remotely means it is easy to manage your equipment even in locations where no systems administrator is present.

PJP-MC24

PJP-MC24 Product Information Page:
http://www.yamaha.co.jp/english/product/projectphone/products/mc24/

Hold audio conferences easily
with this SIP Network server designed for Projectphones.

▌ External dimensions and names of parts
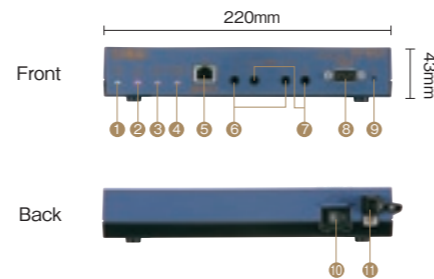
220mm

43mm

Front

Back

Made in Japan

| ❶ POWER LED | ❼ AUDIO OUT |
❷ ALARM LED	❽ CONSOLE port
❸ STATUS LED	❾ INIT switch
❹ CONFERENCE LED	❿ POWER switch
❺ LAN port	⓫ Power cord
❻ AUDIO IN	

▌ PJP-MC24 capabilities

The PJP-MC24 is a SIP server designed exclusively for IP audio conferences, allowing simultaneous connections and talking between up to 24 PJP-100Hs and PJP-50Rs.

24-Location Conference

・Using the PJP-MC24 audio mixing functions, you can hold one conference between up to 24 locations.
・By connecting multiple PJP-MC24s to each other, you can hold conferences between up to 48, 72, or 96 locations
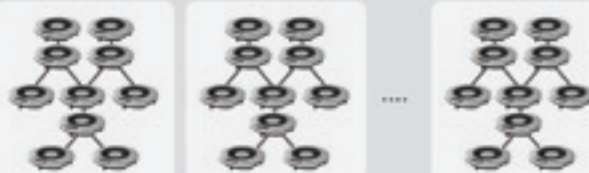 (with two, three, or four PJP-MC24s connected to each other).

・SIP call management
・Conference room utilization
・Audio Mixing
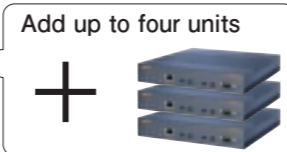
Add up to four units
+

・SIP call management
・Conference room utilization

・SIP call management

10-Location Conference

Conference 1   Conference 2   Conference 30

・You can use the PJP network functions to hold conferences with 2 to 10 locations.
  The maximum number of conferences that can be held simultaneously is 30.

Call Between Individual PJPs

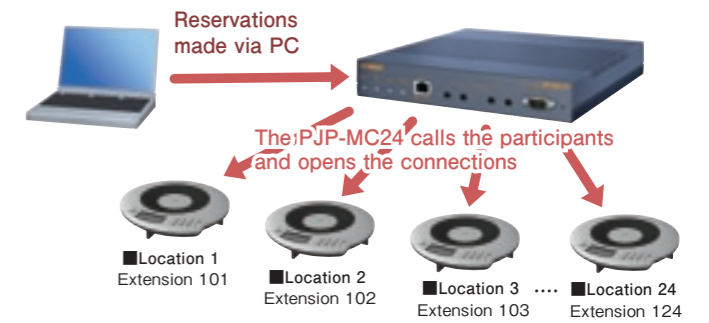2-Location Conference   3-Location Conference   4-Location Conference

・Calls can be made directly between individual PJPs.
  The PJP-MC24 only manages SIP calling.

・Because the PJP-MC24 can only manage up to 200 calls, the number of PJP's that can be connected is limited
  to the number whose maximum number of calls is 200.
・The maximum number of simultaneous conferences is 31 (one 24-location conference plus thirty 10-location conferences).

Point 01

Open simultaneous connections with up to 24 locations

The PJP-MC24 is an audio conference MCU (multi-point control unit) that allows up to 24 PJP-100H/PJP-50R IP audio conference systems to connect and talk simultaneously. You can also connect up to four PJP-MC24s to each other, allowing audio conferences with up to 96 participating locations.

Reservations made via PC

The PJP-MC24 calls the participants and opens the connections

■Location 1 Extension 101   ■Location 2 Extension 102   ■Location 3 Extension 103   ■Location 24 Extension 124

Point 02

Manage conferences and terminals easily from a Web browser

From a Web browser, you can hold, start, and end conferences easily by using the PJP-MC24 conference reservation and convener functions. You can also manage network communications, terminals, and conferences, and view conference history and error logs.

Web browser
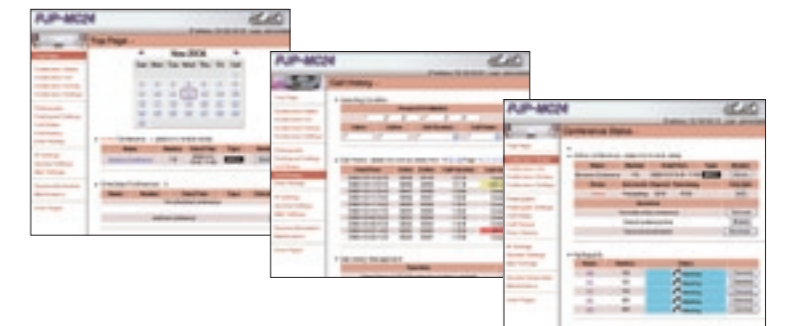
Point 03

Manage terminals and terminal usage status with SIP server functions

The PJP-MC24 has SIP server functions that allow it to assign extension numbers to up to 500 PJPs. As long as all of the PJPs are part of the same network, the PJP-MC24 can manage them by their SIP extension numbers, even in a DHCP environment.
Also, you can output information such as location, call history, and statistics in a CSV format file, allowing you to monitor and analyze the usage of installed PJP-100Hs and PJP-50Rs.

Dials "200"   Dials "400"

Extension 400

Extension 100

Extension 200   Extension 300
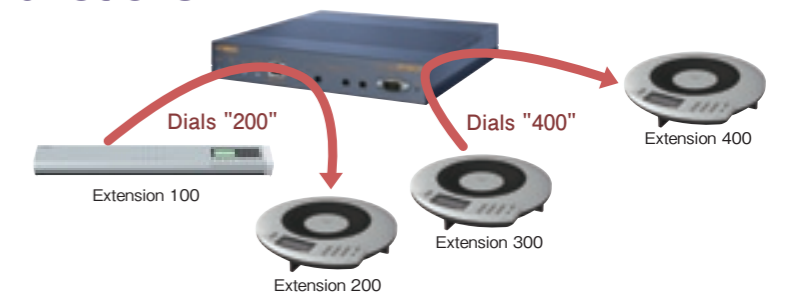
Topics | How to hold conference without PC

■ Ad Hoc

You can hold a conference between 2 to 10 locations quickly and easily without using a PC by setting a conference number that terminals dial in order to participate in the conference.

Extension 100   Extension 300

Extension 200   **The PJPs call the set conference number to join in the conference.**   Extension 400

■ Between Individual PJPs

PJPs can call each other directly by dialing each other's SIP extension numbers. Two to four PJPs can connect to each other in a direct call. This feature is convenient for daily conversations between locations.
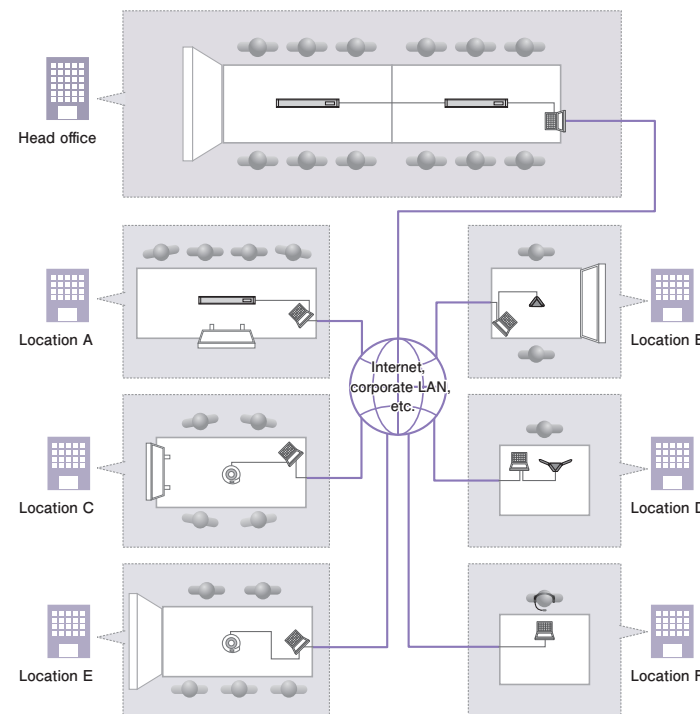
Extension 100   Extension 300

Dials "200"   **Dials "400"**

Extension 200   Extension 400

Conference Microphone Speaker

Ideal for Web Conferencing with VoIP

The PJP-100UH, PJP-50USB, and PJP-25UR are conference microphone speakers featuring Yamaha technology, designed to ease the conferencing experience for both listeners and talkers.

How to use

The Projectphone support Windows standard drivers. They can be used immediately as microphone speakers by connecting them to any PC with a USB cable. Using the Projectphone for Web conferencing* or with a softphone** allows smooth multiperson response without headsets.

* A Web conference system exchanges visual images and sound between locations by using communication features on the PC, and is a collective term for a remote conferencing system that enables you to share data and applications on PC. For simplicity, any conferencing systems or services using the communication features of the PC in this catalog are classified as Web Conference systems.

** A collective term for internet telephony via PC. making calls over the Internet on a PC.

Head office

Location A

Location C

Location E

Internet, corporate LAN, etc.

Location B

Location D

Location F

▲ Add to an existing Web conference system to enable multipoint, multiperson conferencing.

Benefits of integrating the Projectphone with Web Conferencing

Combining the Projectphone with Web conferencing is one of the most effective audio solutions for remote conference systems. Using the Projectphone with its built-in high performance echo canceller as a Web conference microphone speaker enables you to use Web conferences more effectively.

Smooth conversations without echo and audio cut-out

The PJP enables multiple persons to join a Web conference or a conversation via softphone. High audio pick-up and fidelity allow conference participants to speak to one another as if they are in the same room, thus maintaining full-duplex performance.

**Turns a Web Conference into a video conference**

By combining PJPs with a large-screen display and a camera, you can use your Web conferencing system for video conferencing. The Projectphone provides a conferencing experience that is easy on both listeners and talkers, and comparable in performance to a dedicated video conferencing unit.

Provides PC communication the freedom of no headsets

Using a headset for remote conferencing puts a direct strain on the ears and can make you tired after extended use. The Projectphone allows you to speak as naturally as you would during in-person conferences, thus improving productivity without adding stress.

If you've ever felt awkward speaking to the person next to you through a headset...
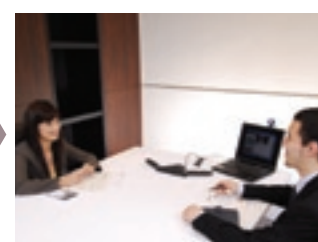
The PJP-25R picks up conversations between adjacent persons. And because you can speak naturally, you will not get tired during long meetings.
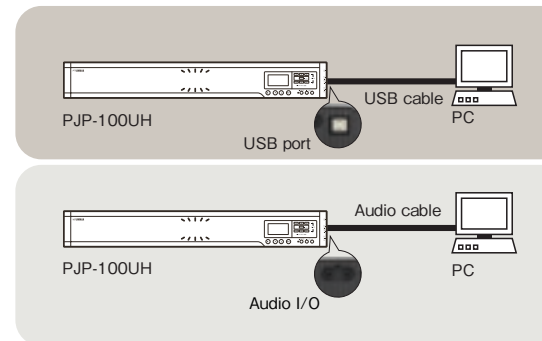
PJP-100UH

The PJP-100UH is a conference microphone speaker that is suitable for a large group of people.

Microphones	Speakers
32	12

Pickup rng*
Rec 2 m
Max 5 m

* Varies depending on communication methods and environment.

page 14

5m
2m

Connections

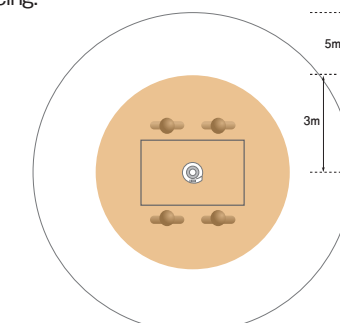PJP-100UH — USB port — USB cable — PC

PJP-100UH — Audio I/O — Audio cable — PC
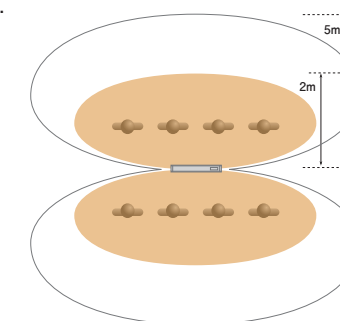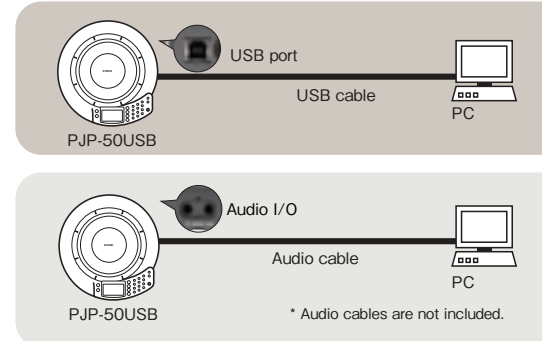
PJP-50USB

The PJP-50USB is a conference microphone speaker suitable for Room-based Web conferencing.

Microphones	Speakers
8	4

Pickup rng*
Rec 3 m
Max 5 m

* Varies depending on communication methods and environment.

page 16

5m
3m

Connections

PJP-50USB — USB port — USB cable — PC

PJP-50USB — Audio I/O — Audio cable — PC

* Audio cables are not included.

PJP-25UR

The PJP-25UR is a conference microphone speaker that is suitable for a small group. In addition to its compact and lightweight body, it runs on USB bus power and is therefore easy to use by connecting to any PC with a USB cable.

Microphones	Speakers
12	2

Pickup rng*
Rec 1.5 m
Max 3 m

* Varies depending on communication methods and environment.

page 18

3m
1.5m

Connections

PJP-25UR — USB port — USB cable — PC

PJP-25UR — Audio I/O — Audio cable — PC

* Requires the PS-AC1 power adapter, sold separately.
* Audio cables are not included.
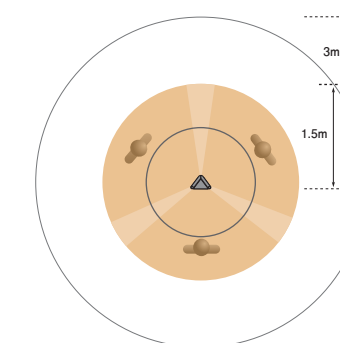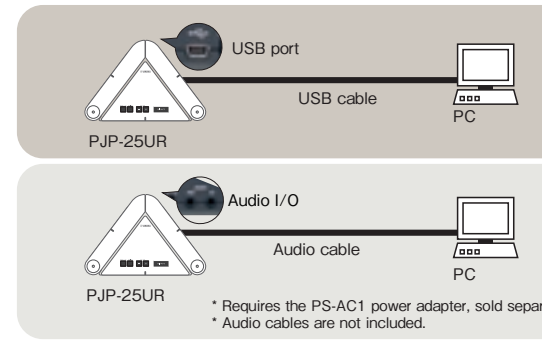
PJP-300V

The PJP-300V can be connected to a PC as a camera-microphone speaker for Web conferencing.

Microphones	Speakers
16	14

Pickup rng*
Rec 7m

* Varies depending on communication methods and environment.

page 20

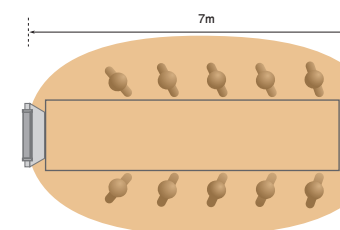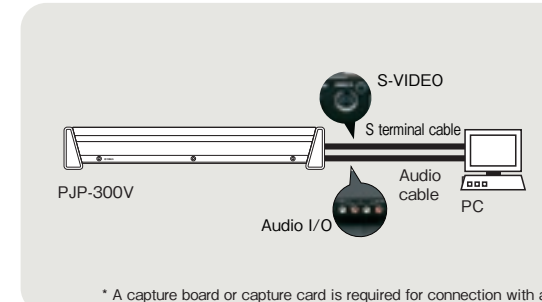7m

Connections

PJP-300V — S-VIDEO — S terminal cable — Audio I/O — Audio cable — PC

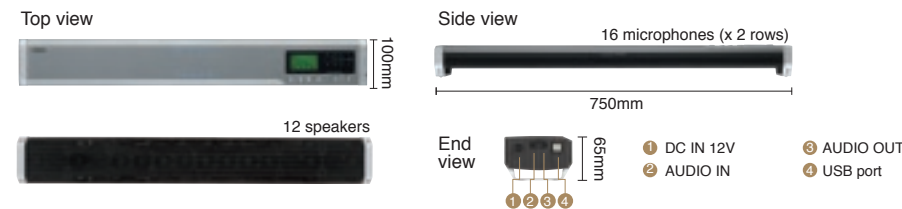* A capture board or capture card is required for connection with a PC.

PJP-100UH(S)

Lets multiple participants join PC conferences with PC VoIP.

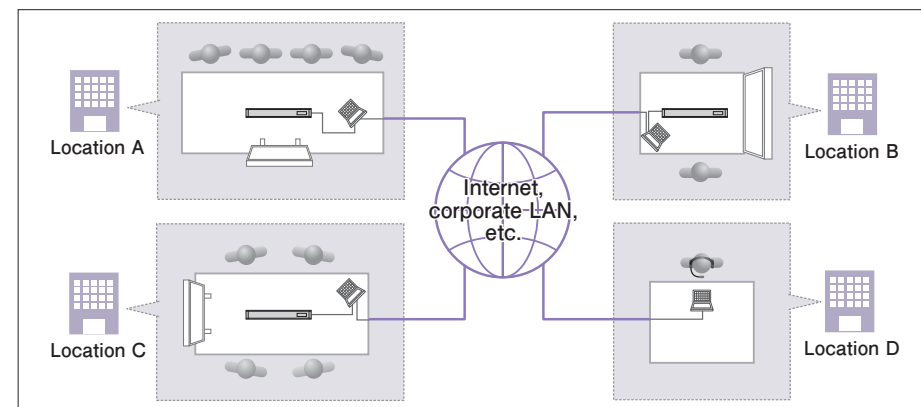**Made in Japan**

External dimensions and names of parts

Top view

100mm

Side view

16 microphones (x 2 rows)

750mm

12 speakers

End view

65mm

❶ DC IN 12V
❷ AUDIO IN

❸ AUDIO OUT
❹ USB port

❶❷❸❹

Main features

Point 01	**Easy to connect, Easy to use**
Point 02	**Design based on acoustic engineering**
Point 03	**Supports daisy chaining for conferences of 10 or more persons**

PJP-100UH capabilities

PJP-100UH is a conference microphone speaker with a built-in high performance echo canceller. When connected to a PC with a USB cable, PJP-100UH enhances your soft phone or Web conferencing system with smooth, full-duplex capability.

Location A

Location C

Internet, corporate LAN, etc.

Location B

Location D

Functions

Microphones	Speakers	Max. volume	Pickup rng*
32	**12**	**85dB**	Rec **2 m** Max **5 m**

* Varies depending on communication methods and environment.

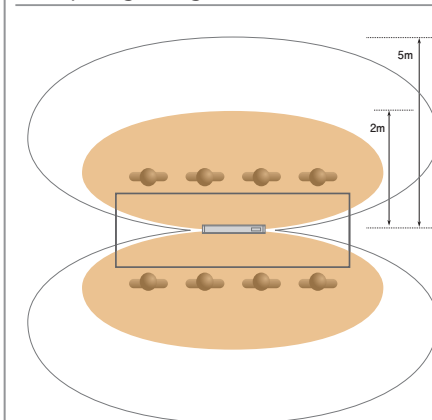| Adaptive echo canceller	Noise reduction	USB (Plug&Play)	Zone pickup	Spot pickup
Microphone auto tracking	Supports RoHS	Firmware rev. upgrading		

Applications

PC (microphone speaker)

Interfaces

USB port　　AUDIO IN/OUT

Pickup range image

5m

2m

Easy to connect, Easy to use

The PJP-100UH is a conference microphone speaker with a built-in high performance echo canceller.
When connected to a PC with a USB or audio cable, the PJP-100UH enhances your softphone* or Web conferencing system for multiperson response that is as smooth as video conferencing.

* Software for making telephone calls over the Internet on a PC.
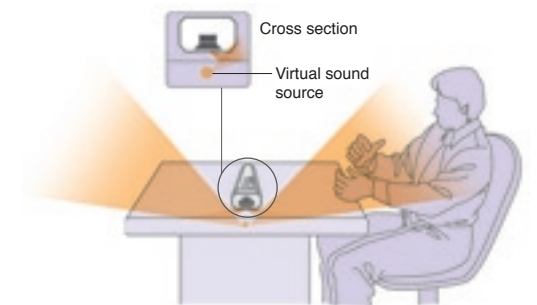
* Supporting products: PJP-100UH, -50USB , -25UR

Design based on acoustic engineering

The PJP has been structurally designed based on acoustic engineering principles to achieve conferences that are easy on both listeners and talkers. The left-to-right microphone array is optimal for pick up and echo cancelling. The undermounted speakers are acoustically designed so that sound reflected off the tabletop reaches the ears.

Cross section

Virtual sound source

* Supporting products: PJP-100H, -50R, -100UH, -50USB

Supports daisy chaining for conferences of 10 or more persons

Whether you want to set up in a large conference room or join a multiperson conference, connecting PJP-100UH with an audio cable lets you expand the pick up range. You can even hold conferences with dozens of people, because up to four units can be daisy chained.

* Connecting extra units introduces additional noise and can lower the sound quality.
** PJP-100UH can also be connected to PJP-50R and PJP-100H.
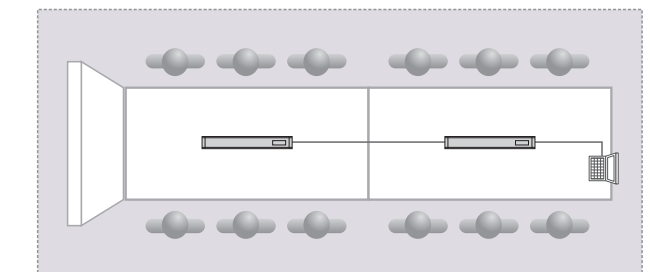
Topics | Pickup range

Because the pickup range is affected by the volume and manner of speaking, room acoustics, communication methods, and other factors, the recommended pickup range varies depending on operating conditions.

・**Volume and manner of speaking**
The "volume" is that of the voice when it reaches the microphone-a person far from the microphone who is speaking loudly, clearly, and directly toward it has the same effective volume as someone close to it.

・**Room acoustics**
In rooms with high reverberation, sound reflected off walls and ceilings affects the pickup. When reverberation is high, echo can occur more easily on the listener side, but at the same time it offers the advantage that speakers far from the microphones can be picked up more easily.

・**Communication method**
In remote conferences, "Pickup" is said to first occur when picked up sound reaches the listener. Even after pickup by the Projectphone, the pickup range is still dependent on the audio bandwidth of the network and communication software.
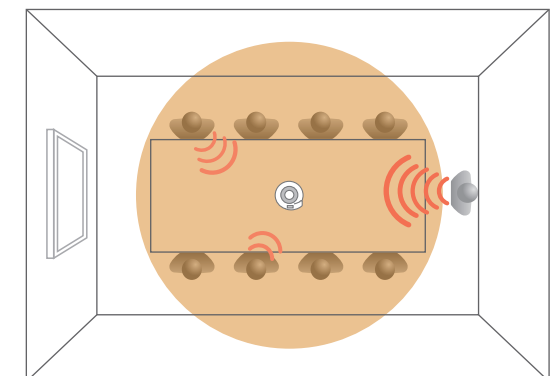
* People farther away speak more loudly and clearly.

PJP-50USB(W)

PJP-50USB Product Information Page:
http://www.yamaha.co.jp/english/product/projectphone/products/50usb/

Room-Based Web Conferencing Device with High Voice Quality.

NEW

Made in Japan

External dimensions and names of parts

Top view

Side view

283mm
298mm
52mm

❶ Microphone indicator ❹ DC IN 12V
❷ Arrayed microphones ❺ AUDIO IN
❸ USB port ❻ AUDIO OUT

Main features

Point 01 Combines wide pickup range with clear audio

Point 02 Noise reduction eliminates fan noise

Point 03 High sensitivity microphones

PJP-50USB capabilities

With its high pickup performance, the PJP-50USB is the ideal microphone speaker for Web conferences and softphones.

Functions

Microphones	Speakers	Max. volume	Pickup range*
8	4	85dB	Recommended 3m / Maximum 5m

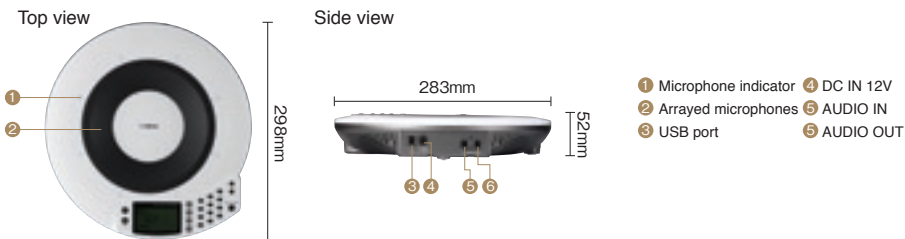* Varies depending on communication methods and environment.

Adaptive echo canceller	Noise reduction	USB (Plug&Play)	Microphone auto tracking	Supports RoHS

Firmware rev. upgrading

Applications

PC (microphone speaker)

Interfaces

USB port	AUDIO IN/OUT

Pickup range image

5m
3m
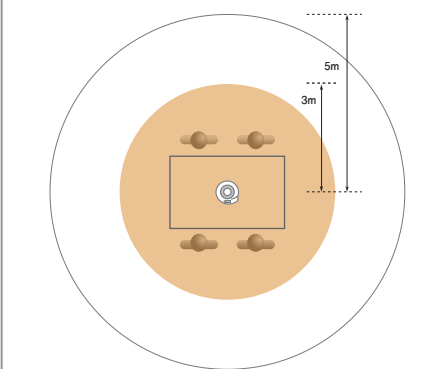
Lineup (Silver)

Conference Microphone Speaker

PJP-50USB(S)

U.S. only

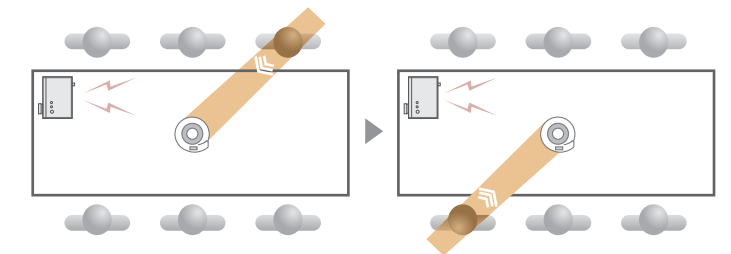**Point 01**

Combines wide pickup range with clear audio

The newly improved microphone tracking function yields both a wide pickup range and clear audio. Expanding the pickup range can mean lower sound quality because ambient noises can be picked up in addition to the talker's voice. But the PJP-50USB greatly reduces these noises by directing the arrayed microphones exclusively toward the talker. This improves the quality of picked up sound, making the talker's voice come through clearly without amplifying ambient noise. It gives you the best of both worlds-broad-ranging pickup and crystal clear audio.

Microphones track only the talker's voice without picking up the sound of the projector.

Point 02

Noise reduction eliminates fan noise

Built-in noise reduction eliminates noise even in rooms with constant sound such as from projectors and air conditioners. Initially noises are physically excluded through directional pickup by the arrayed microphones, and then any noises getting through are eliminated through noise reduction. The talkers' voices are transmitted purely and clearly.

Noise reduction image

Noise components eliminated

Clear audio

■Voices ■Ambient noise, fan noise, etc.
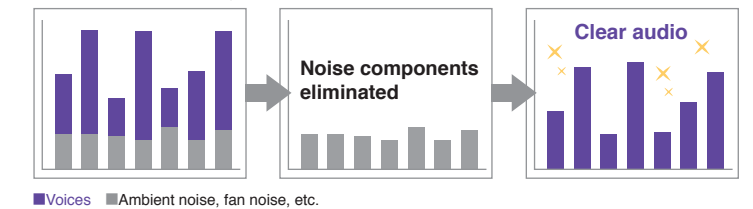
Point 03

High sensitivity microphones

Eight of the PJP-50USB's high sensitivity microphones achieve equivalent or better audio pickup than twice the number of conventional mics. And with auto gain control, distant or quiet voices are picked up better than ever. At the same time, we also improved horizontal and vertical pickup performance by arranging placement of the arrayed microphones. Projector and ventilation noises are avoided because the pickup is resistant to sounds directed at the ceiling.

8m
5m
Recommended pickup range 3m
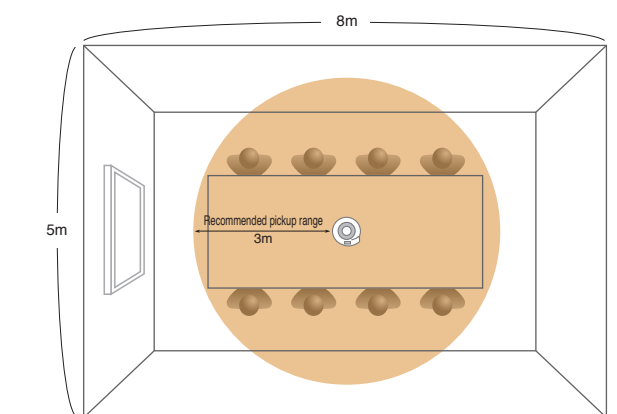
Installation example

Topics | Firmware upgrade requests

The latest Projectphone firmware is available free of charge. Upgrades reflect technological innovations and add improvements in sound quality and functionality to existing models. Be sure to check our Web site regularly for firmware upgrades.

◎ Download from the following URL.

http://www.yamaha.co.jp/english/product/projectphone/support/download/firmware/index.html

PJP-25UR(B)

Compact & lightweight. Movable microphone arms adapt to various seating arrangements.

Made in Japan

External dimensions and names of parts

Top view
Side view
152mm
229mm
34mm
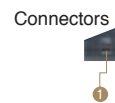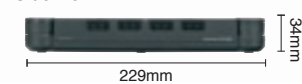
Connectors
1 USB port 3 AUDIO OUT
2 DC IN 5V   4 AUDIO IN

Main features

Point 01 **Compact, lightweight, and easy to carry**

Point 02 **Movable microphone arms adapt to various seating arrangements**

Point 03 **USB bus powered—no power cord necessary**

PJP-25UR capabilities

PJP-25UR Conference Microphone Speaker is suitable for smaller numbers of participants. Its light weight and small size makes it easy to bring into any location.
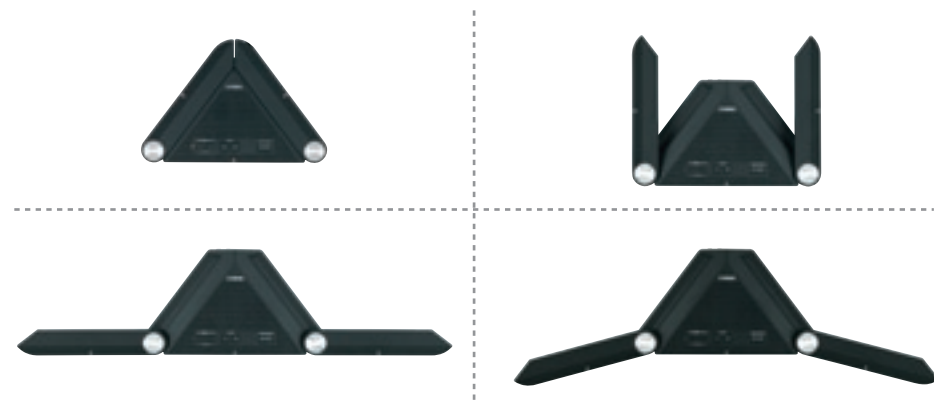
Functions

Microphones	Speakers	Max. volume*	Pickup rng**
12	2	90dB	Rec 1.5 m Max 3 m

* Peak volume by USB bus-powered (0.5 m, 1 kHz, tone burst)
** Varies depending on communication methods and environment.

Adaptive echo canceller | Noise reduction | Movable microphone arms | USB (Plug&Play) | USB bus-powered

PC applications | Supports RoHS | Firmware rev. upgrading

Applications
PC (microphone speaker)

### Interfaces
USB port | AUDIO IN/OUT

Pickup range image
1.5m / 3m
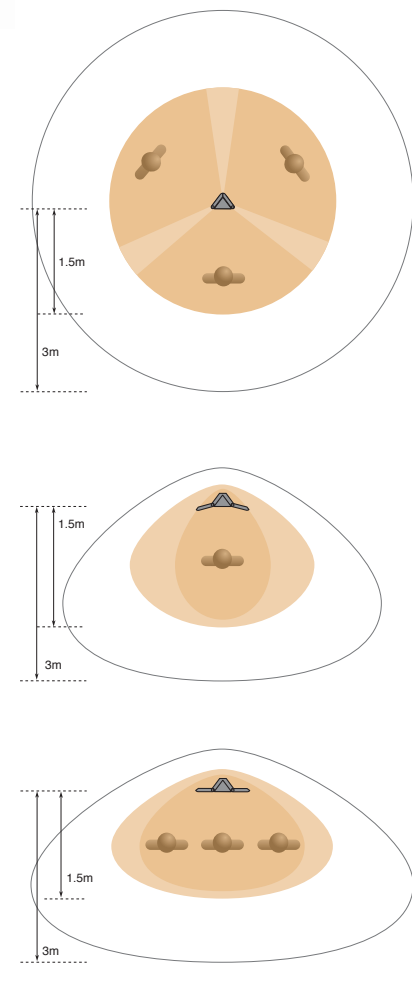
Point 01
Compact, lightweight, and easy to carry

PJP-25UR conceals itself neatly in a B5-size laptop bag, and weighs a mere 570 grams. Because it's easy to carry, you are free to join a Web conference in a variety of situations such as from any small space in the office or when out on a business trip.

Point 02
Movable microphone arms adapt to various seating arrangements

One of the features of the PJP-25UR is its movable microphone arms. By moving the microphone arms to change the pick up range, the conference participant voices are picked up even in locations with some degree of ambient noise such as small spaces in offices. By changing the angle of the microphone arms, the PJP-25UR adapts to the seating arrangement.

Point 03
USB bus powered —no power cord necessary

Since it runs on USB bus power, you can use it as a microphone speaker simply by connecting it to a PC with a USB cable. Connection is simple, offering incredible ease-of-use.

USB cable | PC | PJP-25UR
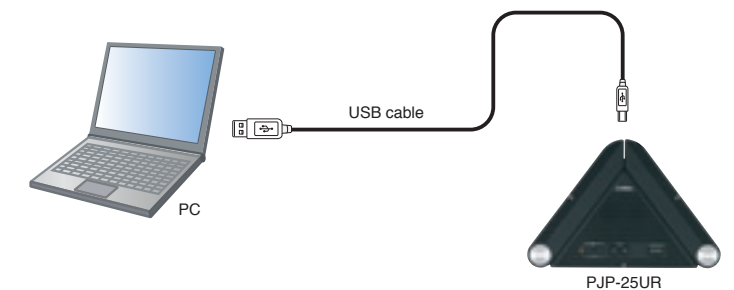
Topics | Software application enters detailed settings from a PC

Product CD-ROM comes with a software application that lets you enter detailed settings

If you enter the number of conference participants and seating arrangement in the settings window, it shows you the optimum PJP-25UR settings. Conference location settings can also be saved and loaded.

▲ Easy to enter detailed settings.
▲ Shows the optimum settings based on the number of people and seating arrangement.
Press the MENU button on PJP-25UR to start the PC application.

PJP-300V(B)

PJP-300V Product Information Page:
http://www.yamaha.co.jp/english/product/projectphone/products/300v/

An integrated camera + microphone speaker for video conference
systems equipped with 16 arrayed microphones,
14 arrayed speakers, and 3 cameras.

● 1.3 million pixels ● Digital zoom, tilt, pan ● 4-way split screen

Made in Japan

External dimensions and names of parts

132mm
822mm

Connectors(left)

Connectors(right)

① Camera
② EXT
③ SERIAL
④ LAN port
⑤ DC IN 15V
⑥ AUDIO IN
⑦ AUDIO OUT
⑧ S-VIDEO

Main features

Point 01	**Talker detection function instantly pans toward the talker**
Point 02	**All in one component, no additional mic needed on the desk**
Point 03	**Video conferencing with 4 locations simultaneously**

Functions

Microphones	Speakers	Cameras	Max. volume	Pickup rng*
16	**14**	**3**	**85dB**	Rec **7m**

* Varies depending on communication methods and environment.

| Adaptive echo canceller | Noise reduction | Supports RoHS | Firmware rev. upgrading |

Applications

| Video (with PJP-VC1) | PC (camera & microphone speaker) |

Interfaces

| LAN port | AUDIO IN/OUT |

OPTION

| Stand for the PJP-300V | **ST-300 / ST-300UD** |
| Wall-mounting kit for the PJP-300V | **BR-300 / BR-300DS** |

page 23

Pickup range image

7m

Codec Box for
IP Video Conferencing **PJP-VC1(B)**

PJP-VC1 Product Information Page:
http://www.yamaha.co.jp/english/product/projectphone/products/vc1/

Adding on the IP video conference codec box
creates a smooth video conference system.

External dimensions and names of parts

45mm
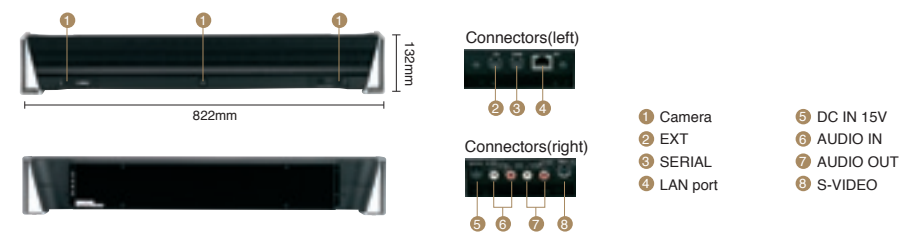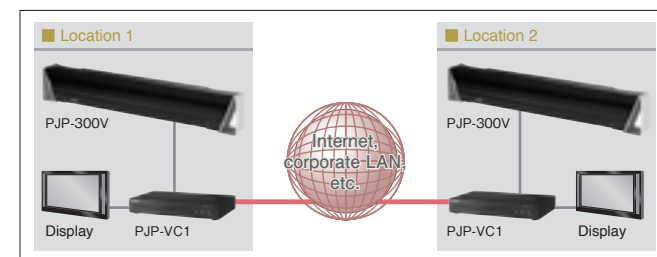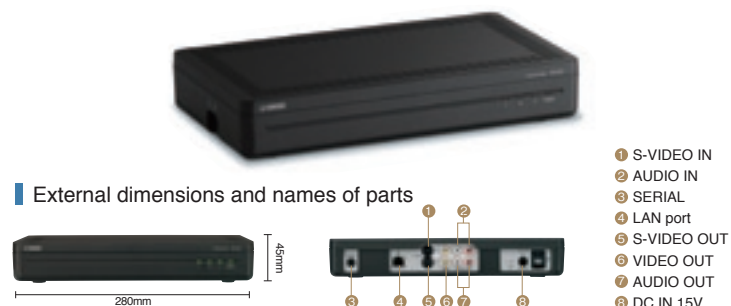280mm

① S-VIDEO IN
② AUDIO IN
③ SERIAL
④ LAN port
⑤ S-VIDEO OUT
⑥ VIDEO OUT
⑦ AUDIO OUT
⑧ DC IN 15V

Capabilities of PJP-300V combined with PJP-VC1

You can create a high sound quality video conference system by connecting PJP-300V with the PJP-VC1 dedicated IP video conference codec box.

■ Location 1
PJP-300V
Display   PJP-VC1
Internet, corporate LAN, etc.

■ Location 2
PJP-300V
PJP-VC1   Display

Point 01

Talker detection function instantly pans toward the talker

Sixteen microphones arrayed on top of the main unit
automatically tracks the talker and instantly points the
three cameras to capture and project the talker's image.
Conferences can proceed smoothly because it is not
necessary to adjust cameras manually- the cameras
change direction quickly to track the talker.

Location A
Displays the talker of the other party.
Internet, corporate LAN, etc.

Location B
The microphones detect the position of the talker, who is then instantly projected on the other party's monitor.

Location A
Internet, corporate LAN, etc.

Location B
Camera tracks changes from talker to talker.
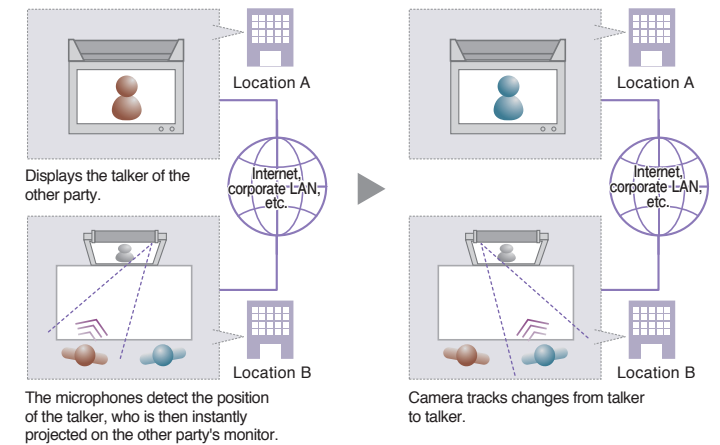
Point 02

All in one component, no additional mic needed on the desk

The sixteen arrayed microphones pick up voices reliably and at a
uniform volume regardless of the seating arrangement in the
conference room. An approximately seven-meter*
(twenty-three-foot) voice pickup range is achieved just with the
unit's built-in microphone array, eliminating the need for additional
external mics. Now you can "spread out" on the conference room
table-no more microphones and cables on the tabletop.

* May differ depending on location and connections.

Point 03

Video conferencing with 4 locations simultaneously

PJP-300V can be combined with PJP-VC1 for
simultaneous 4-location connections without an MCU
(multi-point control unit). This simultaneous 4-location
connection is made by setting up a single unit as the
(master) unit (=enter multi-location connection settings)
and mixing the audio and video on that unit.

San Francisco here   This is Bangalore
Yes, London calling   Hello from Hakata

San Francisco
Base unit 300V + VC1

300V + VC1   300V + VC1   300V + VC1
Hakata   Bangalore   London
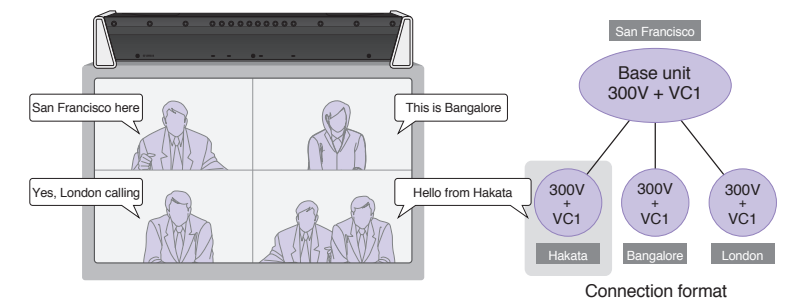
Connection format

Topics | Capabilities of PJP-300V when combined with a Web conference system

PJP-300V can be connected to existing Web conference
systems for use as a camera + microphone speaker.

Connections
Video
Audio
Video
PC
Internet, corporate LAN, etc.

* A capture board or capture card is required for connection with a PC.

Location 1
PJP-300V
Display   PC

Internet, corporate LAN, etc.

Location 2
PJP-300V
PC   Display
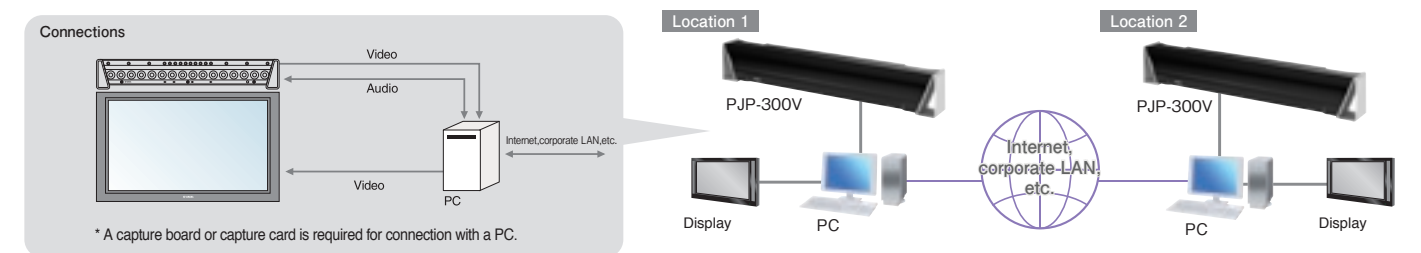
PJP-CAM1

PJP-CAM1 Product Information Page:
http://www.yamaha.co.jp/english/product/projectphone/products/cam1/

A single Web conference camera shoots people, documents, and objects with a fisheye lens.

Made in Japan

Main features

Point 01 Two modes for shooting conference participants

Point 02 Two modes suitable for shooting documents and objects

Point 03 USB bus powered—no AC adapter needed

PJP-CAM1 capabilities

PJP-CAM1 runs only on USB bus power (no other power supply required). By simply connecting to a PC with a USB cable, you can use it as a Web conference camera. Connection is simple, offering incredible ease-of-use.

External dimensions and names of parts

Front view

196mm

124mm

Side view

235mm

❶ Image output terminal
❷ External mic. input terminal
❸ USB terminal
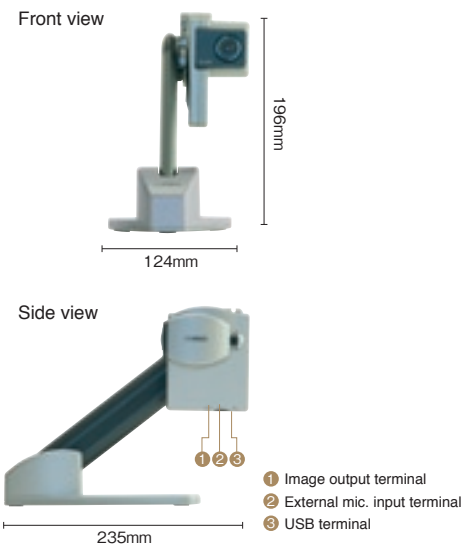
Control screen

You can operate the camera from the PC using the controller.

Point 01

Two modes for shooting conference participants

180 (forward) mode

Shot of the conference room

↓ Cut & correct

Talker located from the sound source, and that part of the image cut out.

360 (upward) mode

↓ Cut & correct

Split screen shows panorama view of all participants.

Point 02

Two modes suitable for shooting documents and objects

Shoots down at a document

Camera points down for use as an OHP.
The CAM1 controller rotates the camera in units of 90 degrees (down, forward, and up).

Removable

Use as a hand-held to shoot anything, at any angle.
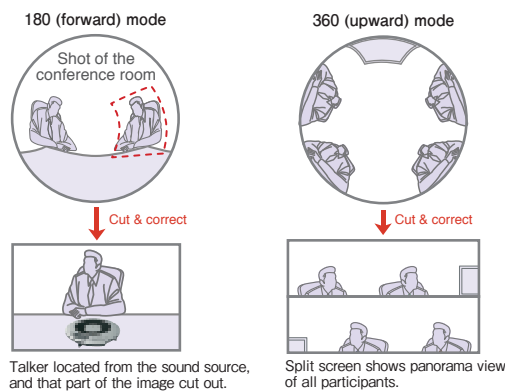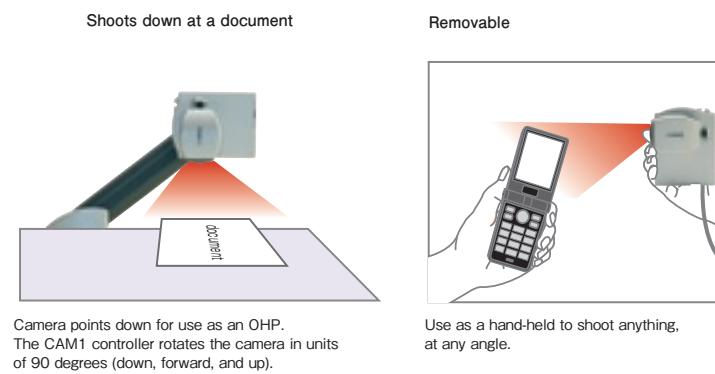
Options

For the PJP-300V

ST-300 Stand for the PJP-300V
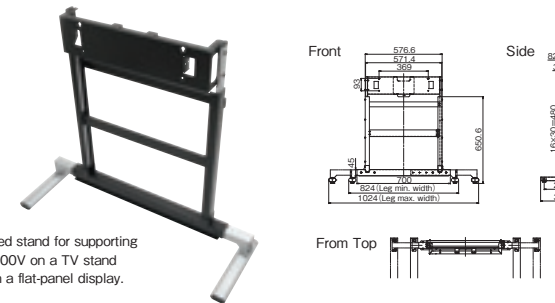
▲ A dedicated stand for supporting the PJP-300V on a TV stand along with a flat-panel display.

Front   Side

From Top

ST-300UD Stand for the PJP-300V
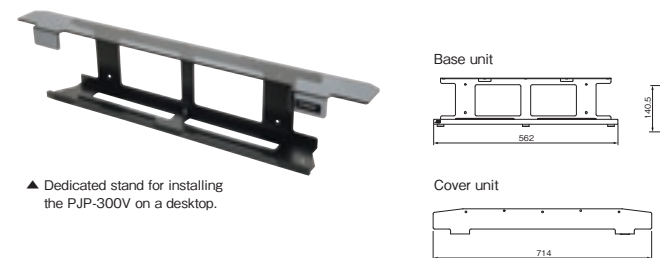
▲ Dedicated stand for installing the PJP-300V on a desktop.

Base unit

562

Cover unit

714

BR-300 Wall-mounting kit for the PJP-300V
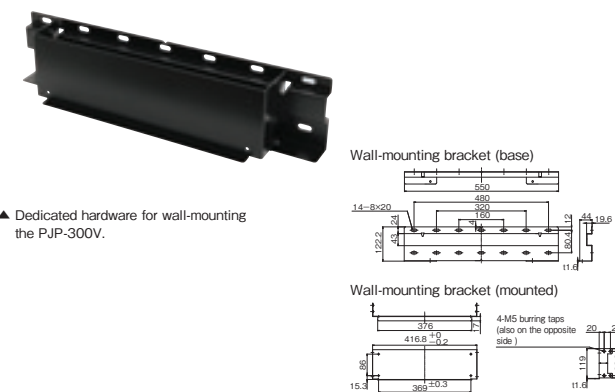
▲ Dedicated hardware for wall-mounting the PJP-300V.

Wall-mounting bracket (base)

Wall-mounting bracket (mounted)

4-M5 burring taps
(also on the opposite side)

BR-300DS Mounting kit for the PJP-300V
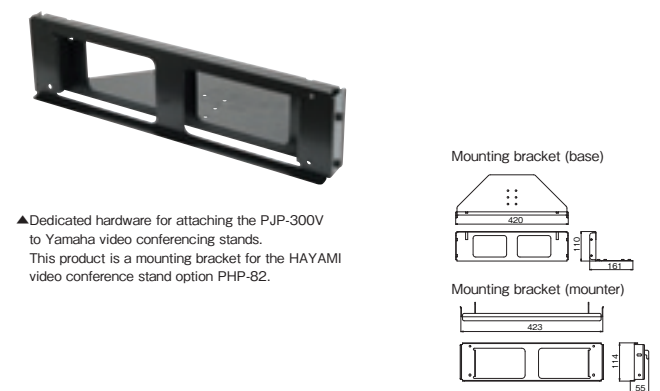
▲Dedicated hardware for attaching the PJP-300V to Yamaha video conferencing stands. This product is a mounting bracket for the HAYAMI video conference stand option PHP-82.

Mounting bracket (base)

Mounting bracket (mounter)

PS-AC1 AC adapter for the PJP-25UR

PS-AC1 is an AC adapter for the PJP-25UR.

▲ Way of use
・Connect to other devices through audio cable.
・When not enough volume is obtainable from USB bus power.

PS-AC1
AC adapter
for the PJP-25UR
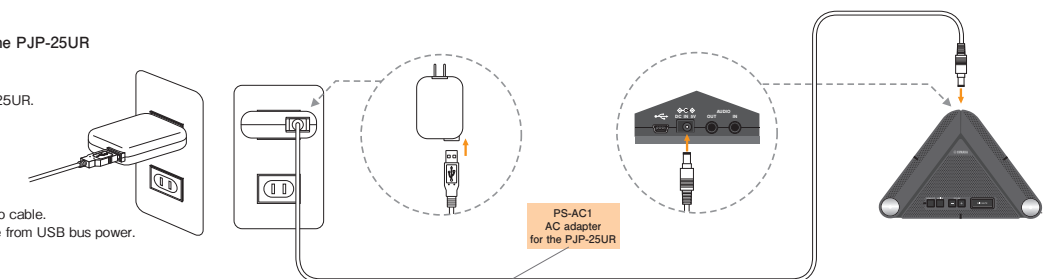
New systems with the sound of Yamaha transform office conferences. The Projectphone delivers results.

The Projectphone embodies the shape of conference systems to come with the sound of Yamaha. With the sound quality you expect from Yamaha technology plus unsurpassed ease-of-use, countless companies have chosen the Projectphone since its release in 2006. It has revolutionized conferencing in a variety of office settings. Take a look at some of the Projectphone's major success stories.

· Download the latest Projectphone success stories at the following URL.
  http://www.yamaha.co.jp/english/product/projectphone/introduction/

Advantage 1   Improved business productivity

Enables easy, multiperson remote conferencing anytime, anywhere.

Adding the Projectphone to your workplace lets you easily hold conferences with remote locations anytime, anywhere. Moreover, it allows you have group meetings with multiple participants across multiple locations, instantly eliminating the inconvenience of fixed video conference rooms that require reservations and scheduling. Given the increased importance of work coordination when team members are spread across multiple locations, business productivity can be dramatically increased through real-time information sharing and communication.

Advantage 2   Increased effective working hours

Reduces business travel time, increasing the ratio of time spent on primary duties.

By setting up a remote conferencing system with the Projectphone, you can reduce time spent moving between business venues and increase effective working hours. Of course, remote conferencing cannot take the place of all appointments and meetings. But if details can be worked out in remote conferences before meeting in person, you can make meetings more productive and therefore less frequent. Also, business trips that used to involve a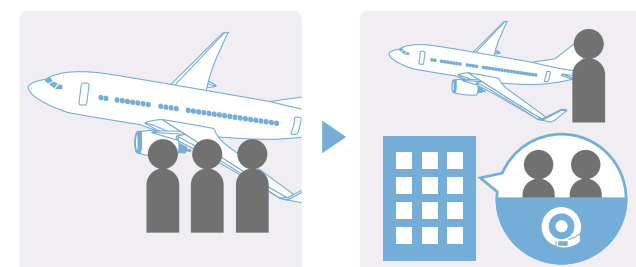 large number of people can be streamlined by sending one representative to the in-person meeting and having the principles appear remotely with the Projectphone only when necessary. This cuts down on the frequency of business trips, improves efficiency, and raises productivity.

Business trip with 3 people flying -> 1 person flying + 2 people attending via the PJP

Advantage 3   Cut costs

Reduced travel expenses, phone charges, and other personnel expenses.

Cutting back on travel expenses also significantly reduces related incidental costs. For example, an IP connection means no phone charges when you use your existing LAN lines. Unlike with video conference systems, there are no usage charges for dedicated lines or multipoint connection services, nor any need for expensive equipment.

Trips This Month

○ :Trip

Trips This Month

○ :Trip □ : Remote conference
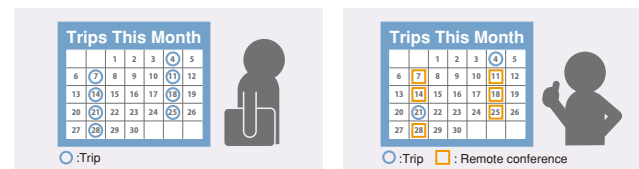
8 trips per month is tough. Twice per month is better, and it saves CO$_2$ on top of travel time.

Advantage 4   Reduced business trip CO$_2$ emissions

Environmentally responsible companies are placing priority on reducing CO$_2$ emissions.

The Projectphone lowers the frequency of business trips, and the amount of transportation-related CO$_2$ that goes with them. Thus, the PJP not only increases business efficiency and cuts travel costs, it also makes a contribution to the environment.

Advantage 5   Effective for contingency planning and risk management

The Projectphone is an effective backup tool for your phone line and for remote conferencing when trouble occurs.

IP audio conference systems are even useful during accidents and disasters, They can be used as emergency backup phone systems, and allow you to easily hold urgent meetings between multiple remote locations when trouble occurs. They are also very useful tools from the standpoint of risk management, because they facilitate coordination with remote locations when employees are injured or sick and have difficulties moving between sites.

Glossary

	Term	Description
Adaptive echo canceller	**Adaptive echo canceller**	Echo can occur in an audio conference system when the microphones pick up the audio reproduced from the speakers. To counter this, the Projectphone incorporates a high-performance adaptive echo canceller that eliminates any of its own sounds that it may pick up. Combining this with a design that minimizes feedback, it offers smooth full-duplex performance that is easy on both the talkers and listeners.
Noise reduction	**Noise reduction**	Built-in noise reduction eliminates noise even in rooms with constant sound such as from projectors and air conditioners. Noise is removed from the ambient sound picked up by the microphones. The listener hears only clear voices.
Movable microphone arms	**Movable microphone arms**	One of the features of the PJP-25UR is its movable microphone arms. By moving the microphone arms to adjust the pickup range, you can optimize pickup performance according to the seating arrangement.
USB (Plug&Play)	**USB (Plug & Play)**	No drivers, applications, or other software need be installed because Windows standard drivers are supported. The Projectphone can be used as a microphone speaker simply by connecting it to a PC with a USB cable. It includes audio terminals, and you can even use it for PCs in the company that are not equipped with USB ports.
USB bus-powered	**USB bus-powered**	Since it runs on USB bus power, you can use the Projectphone as a microphone speaker simply by connecting it to a PC with a USB cable. Connection is simple, offering incredible ease-of-use.
SIP compliant	**SIP compliant**	Connections can be made to a variety of different SIP servers such as the PJP-MC24 audio mixer for multi-location connections, or NEC's SV7000 SIP telephony server.
Zone pickup	**Zone pickup**	Zone mode is recommended for quiet rooms because of its wide audio pickup range. Thanks to the high audio pickup performance of the arrayed microphones, voices are picked up accurately even when distant from the microphones. Because the pickup range can be adjusted, you can ensure that even noises such as from air conditioners and projectors are not picked up.
Spot pickup	**Spot pickup**	In this mode, the narrow directivity of the arrayed microphones allows you to pick up sound only from a specific direction. It is the optimal mode for conferences limited to one or two participants, or in noisy environments. Even in open spaces or when surrounded by noise, only the unadulterated voices of the talkers are heard by the other party.
Microphone auto tracking	**Microphone auto tracking**	A microphone beam position detection function automatically tracks in the direction of the talker. Only the unadulterated voice of the talker is picked up. Because pickup is directed toward the talker, this mode is useful for multiperson conferences where noise sources are present.
Divide mode	**Divide mode**	The voices can be reproduced from different speakers according to the locations of the talkers. Outputs without crossing not only make voices easily audible, but also enable easy identification of the location of the current talker.
Talker position reproduction mode	**Talker position reproduction mode**	The microphone array's talker detection function and the speaker array's virtual sound source generation function combine to facilitate the "talker position reproduction mode" that modifies audio output according to the seating arrangement of the callers. Sound is output at different positions making it easy to distinguish between multiple voices (up to three talkers per location over a two-location IP conference).
PC applications	**PC applications**	The PC applications include various adjustment functions and setup wizards that enable entry of detailed settings. We also recommend installing PC applications in order to upgrade the firmware and ensure that you always have the latest functions.
Supports RoHS	**Supports RoHS**	The RoHS directive ("the restriction of the use of hazardous substances") refers to the Toxic Substances Control Act implemented in the European Union (EU). Since its implementation on July 1, 2006, six designated substances (lead, mercury, cadmium, hexavalent chromium, PBB (polybrominated biphenyls), and PBDE (polybrominated diphenyl ethers)) have been banned from electric/electronic products handled in the EU region.
Firmware rev. upgrading	**Firmware revision upgrading**	Firmware with the latest functions is offered free of charge. It can be downloaded onto a unit either from that unit or by using the PC application, and we encourage all customers to do so.

Projectphone specification comparison charts

PJP-100UH(S) Conference Microphone Speaker / PJP-50USB(W) Conference Microphone Speaker / PJP-25UR(B) Conference Microphone Speaker

		PJP-100UH(S) Conference Microphone Speaker	**PJP-50USB**(W) Conference Microphone Speaker	**PJP-25UR**(B) Conference Microphone Speaker
General	External interfaces	USB 2.0 Full-Speed, analog audio input/output × 1 each (stereo mini-jacks) AC adapter connector (DC-12 VIN): Accessory AC power adapter Serial (RS232C compliant) mini-DIN: Talker position data output	USB 2.0 Full-Speed, analog audio input/output × 1 each (stereo mini-jacks) AC adapter connector (DC-12 VIN): Accessory AC power adapter	USB 2.0 Full-Speed, analog audio input/output × 1 each (stereo mini-jacks), AC adapter connector (DC-5 VIN)
	Max. power consumption	36 W	9.0 W or less	Under USB bus power: 2.5 W or less; under self power: 3.0 W or less
	Radio interference standard	VCCI-class A	VCCI-class B	VCCI-class B
	Operating environment	Operating temperature: 0-40°C, operating humidity: 20-85% (no condensation)	Operating temperature: 0-40°C, operating humidity: 20-85% (no condensation)	Operating temperature: 0-40°C, operating humidity: 20-85% (no condensation)
	Dimensions	750 (W) x 65 (H) x 100 (D) mm	283 (W) x 52 (H) x 298 (D) mm	229 (W) x 34 (H) x 152 (D) mm
	Weight	2.9 kg (excl. power adapter)	1.4 kg (excl. power adapter)	570 g
	Power supply	100 to 240 V AC(50/60Hz)	100 to 240 V AC(50/60Hz)	USB bus-powered, self-powered
	Accessories	AC adapter, power cable, USB cable (2 m), owner's manual	AC adapter, power cable, USB cable (2 m), CD-ROM, owner's manual	USB cable (2 m), CD-ROM, owner's manual
	Supported OS	Windows® Vista (32bit, SP1 or later), Windows® XP (32bit, SP2 or later), Windows® 2000 (SP4 or later)	Windows® Vista (32bit, SP1 or later), Windows® XP (32bit, SP2 or later), Windows® 2000 (SP4 or later)	Windows® Vista (32bit, SP1 or later), Windows® XP (32bit, SP2 or later), Windows® 2000 (SP4 or later)
	Others	Firmware revision upgrade (transferred from PC via USB)	Firmware revision upgrade (transferred from PC via USB)	Firmware revision upgrade (transferred from PC via USB)
Audio	Microphones	16 microphones × 2 rows, zone and spot audio pickup functions, microphone auto tracking function	8 microphones, microphone auto tracking function	4 microphones × 3 rows
	Speakers	12 speakers, point audio source control, directivity control, diffusion mode (monaural output), spot mode (monaural output), volume: 85 dB (0.5 m)	4 speakers, mono playback, volume: 85 dB	2 speakers, mono/stereo playback (when only speaker in use), volume: 90 dB (0.5 m, 1 kHz, tone burst)
	Frequency range	300-7,000 Hz	300-20,000 Hz	300-20,000 Hz
	Signal processing	Adaptive echo canceller, noise reduction, microphone/speaker array control	Adaptive echo canceller, noise reduction, microphone array control	Adaptive echo canceller, noise reduction, microphone array control, stereo speaker playback

PJP-100H(S) IP Audio Conference System / PJP-50R(S) IP Audio Conference System

		PJP-100H(S) IP Audio Conference System	**PJP-50R**(S) IP Audio Conference System		
General	External interfaces	Ethernet (10BASE-T/100BASE-TX), analog audio input/output × 1 each (stereo mini-jacks) AC adapter connector (DC-12 VIN): Accessory AC power adapter Serial (RS232C compliant) mini-DIN: Talker position data output	Ethernet (10BASE-T/100BASE-TX), analog phone/modular connector Analog audio input/output × 1 each (stereo mini-jacks) AC adapter connector (DC-12 VIN): Accessory AC power adapter		
	Max. power consumption	36 W	8 W		
	Radio interference standard	VCCI-class A			
	Operating environment	Operating temperature: Operating temperature: 0-40°C, operating humidity: 20-85% (no condensation)			
	Dimensions	750 (W) x 65 (H) x 100 (D) mm	283 (W) x 52 (H) x 298 (D) mm		
	Weight	2.9 kg (excl. power adapter)	1.4 kg (excl. power adapter)		
	Power supply	100 to 240 V AC(50/60Hz)			
	Accessories	AC adapter, power cable, LAN cable (3 m), owner's manual	AC adapter, power cable, LAN cable (3 m), phone cable, owner's manual		
	Others	Logging function (SYSLOG), firmware revision upgrade (HTTP, TFTP), settings (Web, main unit key operation)			
Audio	Microphones	16 microphones × 2 rows, zone and spot audio pickup functions, microphone auto tracking function	16 microphones, zone and spot audio pickup functions, microphone auto tracking function		
	Speakers	12 speakers, point audio source control, directivity control, diffusion mode (monaural output), spot mode (monaural output) Divide mode (positioning: max. 3 positions), volume: 85 dB (0.5 m)	4 speakers, point audio source control, directivity control, diffusion mode (monaural output) Divide mode, talker position output mode (positioning: max: 3 positions), volume: 85 dB (0.5 m)		
	Frequency range	300-7,000 Hz			
	Signal processing	Adaptive echo canceller, noise reduction, microphone/speaker array control			
Communications	Connecting locations	Mesh connection (max. 4 locations), cascade connection (max. 8 locations)			
		2-location call	3-location call		4-location call
	Audio Codec	G.711 extended original system (fs = 16 kHz)	G.711 (μ-Law/A-law)	G.726	G.729a
	Required transmission bandwidth	160 kbit/s	90 kbit/s	60 kbit/s	24 kbit/s
		320 kbit/s	180 kbit/s	120 kbit/s	48 kbit/s
		480 kbit/s	270 kbit/s	180 kbit/s	72 kbit/s
	Others	Compliance to DHCP, UPnP, SIP and Time synchronization with SNTP server	Compliance to DHCP, SIP and Time synchronization with SNTP server		

PJP-MC24 Multipoint Audio Control Unit

	PJP-MC24 Multipoint Audio Control Unit
Connected devices	Yamaha PJP-50R/PJP-100H IP Audio Conference System
Connected locations	Up to 24 (up to 96 when 4 units daisy-chained)
Daisy-chaining	Up to 4 units
Conferencing functions	Convener, reservation
Simultaneous conferences	31 rooms total (24 locations → 1 room, 10 locations → 30 rooms)
LAN port	1 ports (10BASE-T/100BASE-TX, stereo/cross auto recognition function)
Audio ports	Analog audio input/output×1 each(stereo mini-jacks)
Status LED	6, front panel (POWER, ALARM, STATUS, CONFERENCE, LINK, SPEED)
Operating environment	Ambient temperature: 0 to 40°C; Ambient humidity 15 to 80% (no condensation)
Storage environment	Ambient temperature: -20 to 50°C; Ambient humidity 10 to 90% (no condensation)
Power supply	100 to 240 V AC(50/60Hz)
Max. current consumption	0.12 A
Radio interference standard	VCCI-class A
Dimensions	220 (W) x 43 (H) x 220 (D) mm (excluding cables and connectors)
Weight	1200 g
IP protocol	IPv4
Call control protocol	SIP (RFC3261 compliant)
Max. registered locations	500
Max. simultaneous connections	200
Audio Codec	G.711 extended original system (fs = 16 kHz), G.711 (μ-Law/A-Law)
Proxy function	Statefull
Verification function	Digest
Management functions	Location info., call status, call history, interruption history, conference history, interruption e-mail notification
Setting methods	Downloading and uploading via TFTP, settings/management screen (GUI), save all locations to CSV file
Accessories	LAN cable, owner's manual, CD-ROM
Others	Firmware revision upgrading(TFTP)

PJP-300V(B) Video Conference System / PJP-VC1(B) IP Video Conference Codec

		PJP-300V(B) Video Conference System	**PJP-VC1**(B) IP Video Conference Codec
Communications	Protocols	–	ITU-H.323, SIP
	Max. data rate	–	1920 kbit/s
	Video encoding	–	H.261, H.263, H.264
	Audio encoding	–	G.722, G.711 (μ-Law/A-law), G.729a
Video	Video format	NTSC/PAL	–
	Main cameras	130 kilopixel CMOS cameras (x 3), horizontal field of view: 56˚, 120˚ camera tracking pan, auto white balance, digital/zoom up to x 1.8/pan ± 12˚x (at max zoom)/tilt ± 12˚ (at max zoom)	–
	Camera tracking	3-D auto-tracking/fixed	–
Audio	Microphones	Built-in arrayed microphones (16 x 1) (zone pickup mode)	–
	Speakers	Built-in arrayed speakers (14 speakers x 1 row) (directivity control diffusion mode)	–
	Frequency range	300 - 7,000 Hz	
	Signal processing	Echo canceller, noise reduction, microphone/speaker array control	
	External interfaces	Audio inputs and outputs: RCA stereo, video output: S-video x 1, Ethernet (10BASE-T/100BASE-TX) x 1, serial port: mini-DIN, 8-pin x 2 (for connecting to PJP-VC1,or extension)	Audio outputs: RCA pin stereo; audio input terminal: RCA pin stereo; video input terminals: S-video x 1, composite x 1; video output terminals: S-video x 1,composite x 1; Ethernet (10BASE-T/100BASE-TX) x 1; serial port: mini-DIN 8-pin; PJP-300V and AC adapter connectors (DC-15 V IN)
General	Power supply	100 to 240 V AC(50/60Hz)	
	Dimensions	822 (W) x 132 (H) x 84 (D) mm	280 (W) x 45 (H) x 173 (D) mm
	Weight	4.3 kg (excl. power adapter)	1.3 kg (excl. power adapter)
	Operating environment	Operating temperature: 0-40°C (32-39˚F), operating humidity: 20%-85% (no condensation)	
	Radio interference standard	VCCI-class A	
	Accessories	Remote control, 2 AA batteries, AC adapter, power cable, LAN cable (3 m), stereo audio cable, S-terminal cable, owner's manual	AC adapter, power cable, LAN cable (3 m), S-terminal cable, serial cable, owner's manual
	Others	Firmware revision upgrading (HTTP, TFTP)	Firmware revision upgrading (transferred from PC via Ethernet)

PJP-CAM1(B) Codec Box for IP Video Conferencing

		PJP-CAM1(B) Codec Box for IP Video Conferencing
Video	Lens	360-degree fisheye (distance to subject: 0-infinity)
	Diagonal viewing angle	180 degrees
	Minimum subject illuminace	10 lux
	Image sensor	1/2 type single-plate CMOS
	No. of non-defective pixels	Approx. 3.15 mil. pixels (with diagonal viewing angle of 180 degrees)
	Image size	640 x 480 (VGA), 320 x 240 (QVGA), 352 x 388 (SIF), 352 x 240 (CIF), 176 x 144 (QCIF), 160 x 120 (QQVGA)
	Frame rate	10 fps
Interfaces	USB terminal	USB 1.1 (mini USB terminal)
	Image output terminal	Mini-jack, composite video 1 Vp-p sync negative, output impedance: 75 Ω, image signal formats: NTSC/PAL
	External mic input terminal	Mini-jack (monaural), plug-in power, impedance: 2.2 kΩ
	PC operating environment	Supported OS: Microsoft® Windows®XP Professional/Home Edition, Windows® Vista (requires Direct x 8.0 or later) CPU: Intel® Pentium® /Celeron®-compatible processor, 1 GHz or higher, memory: 256 MB or higher (512 MB or higher recommended), USB: USB 1.1
Other	Power supply	5 V (supports USB bus power)
	Operating environment	Temperature: 0-40 °C, humidity: 20-80% (no condensation)
	Radio interference standard	VCCI-class A
	Dimensions	124 (W) x 196 (H) x 235 (D) mm (on stand, excl. protrusions)
	Weight	0.5 kg (on stand)
	Accessories	USB cable (2 m), video cable (5 m), stand, document mat, CD-ROM, owner's manual
	Others	Firmware revision upgrade (transferred from PC via USB)

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