

# Panasonic

## BUSINESS

HD Visual Communications System

KX-VC1600

KX-VC1300

KX-VC300



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HD Visual Communications System: <http://panasonic.net/psn/products/hdvc/index.html>

Printed in Japan MG-HDCC019EN 1512NSP/SSP----1



\*This image shows the KX-VC1600

# Connects multiple sites to allow for flexible, stress-free videoconferences for all participants.

The new HD Visual Communications (HDVC\*) System connects to multiple sites for videoconferences with minimal installation costs. You can also use a mobile device to take part in a videoconference from a location away from your company. The HDVC System realises effective visual communication without restrictions on time or place. It flexibly responds to a wide range of communication needs in various fields, such as education, manufacturing, healthcare, finance and sales.

\* HD Visual Communications System is abbreviated as HDVC hereafter.

Enhanced Model

## KX-VC1600

(Remote control included. HD Communication Camera, Boundary Microphone and HDMI cable sold separately.)



- 10-Site\*1 Connection
- Multicast \*1
- Dual Network
- Multi Device
- Triple Monitor
- Profile Registration
- Broadband Stereo Full Duplex Audio
- Full-HD 1080/60p
- AV-QoS
- Camera Control
- Rec terminal \*2

Basic Model

## KX-VC1300

(Remote control included. HD Communication Camera, Boundary Microphone and HDMI cable sold separately.)



- 4-Site Connection
- Multicast \*1
- Dual Network
- Multi Device
- Dual Monitor
- Profile Registration
- Broadband Stereo Full Duplex Audio
- Full-HD 1080/60p
- AV-QoS
- Camera Control
- Rec terminal

\*1 Option must be purchased. (Refer to "Activation key" on page 16.)  
\*2 Used when connecting the HDMI3 terminal (TV/recording terminal) to a TV or recording device with an HDMI cable.

## Connection to Multiple Sites

The HDVC System can connect up to 10 sites without any optional equipment. It can connect via intranet or Internet, thus enabling multi-site videoconferencing with a client or with people in distant locations via mobile devices.

\* Connection of up to 10 sites is supported only by the KX-VC1600. The indicated number of connection sites includes the home location.  
\* Option must be purchased.

## Clear Communication

The HDVC System incorporates Panasonic's high-quality image and sound technologies cultivated in the development of various AV products over the years. The system conveys facial expressions and nuances of voices to facilitate discussions and remote lectures.

## Easy to Use

The Triple Monitor function displays a PC document and the images of distant sites and the home location on three monitors. The sub camera function displays fine details in a close-up view. Various convenient functions help to make communication smooth and accurate.

\* The function to display on three monitors is supported only by the KX-VC1600. The KX-VC1300 can display images on two monitors.



# Connection to Multiple Sites

10-Site Connection (Supported only by the KX-VC1600)

## Multi-site videoconference with people at up to 10 locations\*<sup>1</sup>

The KX-VC1600 lets you hold a multi-site videoconference with people at up to 10 sites\*<sup>1</sup> without requiring the purchase of expensive MCUs (Multi-point Connection Units). When combined with Panasonic's NAT Traversal Service or HD Visual Communication Mobile (HDVC Mobile) software that enables the use of mobile devices for participating in a videoconference, you can have effective visual communication without restrictions on time or place.

\*1 Option must be purchased. (Refer to "Activation Key" on page 16.)

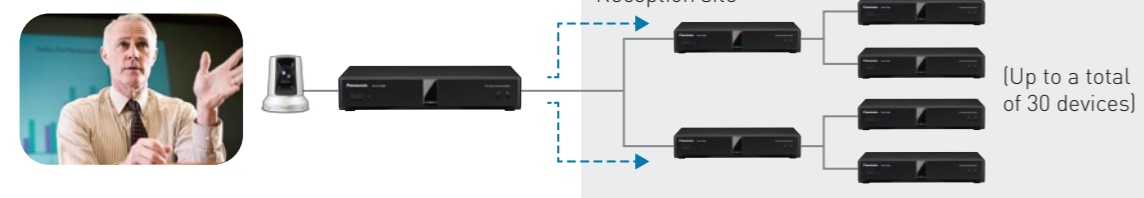


\* HDVC System connection service

## Multicast (one-way video transmission) is possible for up to 30 sites

If the KX-VC1600 or KX-VC1300 is used as the video transmission device, transmission is possible for up to 30 sites without having to use an expensive control server or MCU. Images can be easily transmitted depending on your needs, such as regular morning meetings or seminars. By sending camera images sequentially, access concentration can be prevented at the image transmission site. This enables a comfortable line environment for multi-site transmission.

### Video transmission site

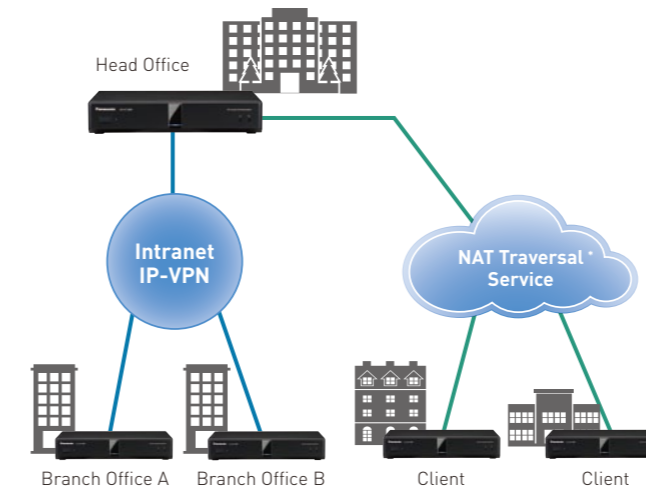


- Cannot be used for NAT Traversal Service.
- A Multicast Activation Key (KX-VCS302) is required for the video transmission device and all receiving HDVC System sites. See page 16.
- The KX-VC1600, KX-VC1300, KX-VC600, and KX-VC300 can be used as the video transmission device. However, when the KX-VC600 or KX-VC300 is used as the video transmission device, a separate server is required.
- The KX-VC1600, KX-VC1300, KX-VC600, and KX-VC300 can be used as the reception site device.
- A mesh type network is required.

Dual Network (Supported only by the KX-VC1600)

## Connection to offices and clients

Because the HDVC System can connect via intranet/VPN and Internet simultaneously, it is easy to configure a videoconference system connected to sites inside and outside your company. The HDVC System can be used to hold videoconferences with clients without a large investment in equipment.



\* HDVC System connection service

Multi Device

## Participation in videoconferences using mobile devices

You can join a videoconference from a location outside of the office, while you are on the go, or from your own home using a Windows/iOS/Android™ mobile device. The HDVC System provides effective visual communication without restrictions on time or place.



### How to get HDVC Mobile

HDVC Mobile is required for participating in a videoconference using an iOS/Android™ mobile device or Windows PC. HDVC Mobile can be downloaded from the following URL.  
[http://panasonic.net/psn/products/hdvc/product/mobile\\_android/index.html](http://panasonic.net/psn/products/hdvc/product/mobile_android/index.html)

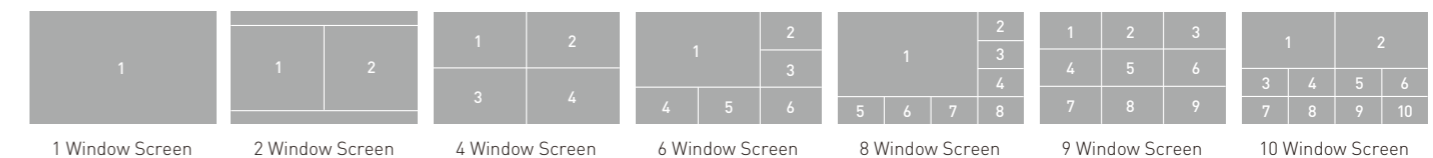
\* An Activation Key is required to use the software. For details, see page 16.

## Optimum screen layout

The HDVC System comes with a function that lets you choose a screen layout from a variety of options. For instance, you can select a screen layout to show all participating sites or to display the site with a high voice level in a large window (Window 1 in the layouts shown below). The most suitable screen layout can be selected according to the type of videoconference held.

The screen layout changes automatically according to the number of connection sites.

- For Discussion mode, designated sites can be displayed at the preset screen positions.



### Other screen layout functions

- Display of a selected site (home location, distant location) at the upper left corner (Priority 1 position) [Site Selection]
- Display of the master location at Priority 1 position and display of the site with the highest sound level at Priority 2 position [Voice Activated Changeover 2]

# Clear Communication

Full-HD 1080/60p

## Conveys even facial expressions and gestures

The HDVC System delivers high-resolution Full-HD 1080/60p images. Displayed images are as clear as Full-HD TV images and allow for effective visual communication. The HDVC System shows even small changes in facial expressions for high-quality communication. HD images can be displayed with a bandwidth of 256 kbps or higher.\*1 \*2

\*1 A device setting change is required. \*2 The frame rate depends on the network environment.



SD



Full-HD

Even changes in facial expressions can be seen clearly, and gestures, actions and quick motions appear smoothly.

### High-image-quality 1080/60p HD Communication Camera

When combined with the GP-VD151/GP-VD131, the HD Communication Camera delivers smooth, high-resolution 1080/60p Full-HD images.

- GP-VD151 (Sold Separately)**  
HDMI cable sold separately
- Full-HD
  - 12x Optical zoom/10x digital zoom
  - Pan range: ±100°/tilt range: ±30°
  - Can be controlled from the remote control of HDVC System

- GP-VD131 (Sold Separately)**  
HDMI cable sold separately
- Full-HD
  - 3x Optical zoom/4x digital zoom
  - Pan range: ±100°/tilt range: ±20°
  - Can be controlled from the remote control of HDVC System

Broadband Stereo Full Duplex Audio

## Easy to hear even when two people talk simultaneously

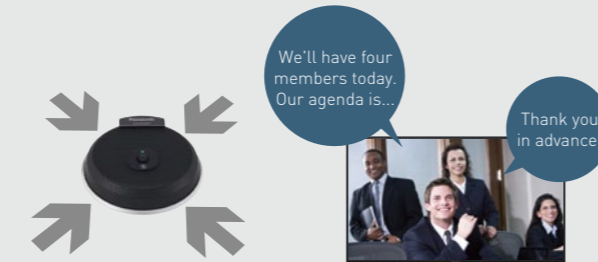
Full-duplex audio in wideband stereo allows high-quality sound to fill the room with clarity. A unique Echo Canceller prevents echoes and howling, and there are hardly any delays or interruptions even when two people speak at the same time. You can enjoy smooth, natural conversations as if you were all in the same room.



There is hardly any interruption even when two people speak at the same time or when conversations overlap.

### High-quality Boundary Microphone

The HDVC System has four compact built-in microphones. A direction recognition function reflects the direction and position of the speaker's voice to the listener's side speakers.



Digital Boundary Microphone KX-VCA001 [Sold Separately]

You can hear the voices of the speakers right from their positions.

AV-QoS

## Stress-free conference

The generation of packet losses for the HDVC System and HDVC Mobile is prevented by the rate control (AV-QoS), and lost packets are restored by the combined use of the forward error correction and automatic repeat request control. Even if the bandwidth decreases after communication starts, clear communication is maintained according to the communication line condition. Because video and audio communication is maintained at 256 kbps per site, there are minimum image disruptions and audio interruptions, and the connection stays stable.

AV-QoS is also supported for mobile devices.



### Comparison of communication quality with congested network connection



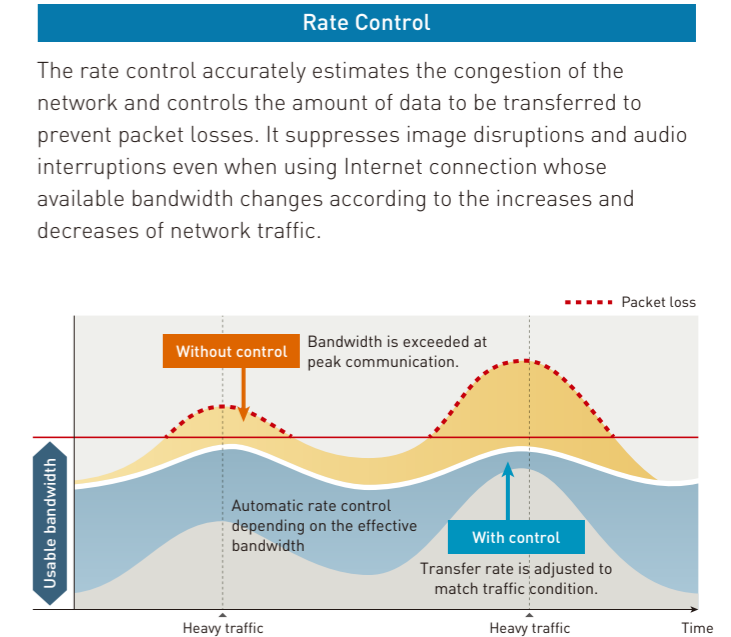
Without AV-QoS

Frequent image disruptions



With AV-QoS

Minimum image disruptions

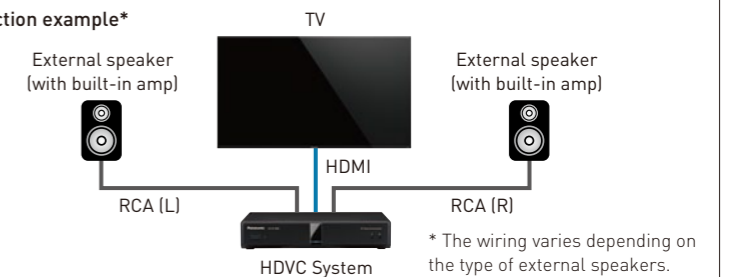


### To be used appropriate sound quality

The other party's voice might be difficult to hear depending on the room conditions, built-in speaker of Television. In order to utilize videoconference with good sound, it is recommended to use external speakers.

For details, please contact your dealer.

### Connection example\*



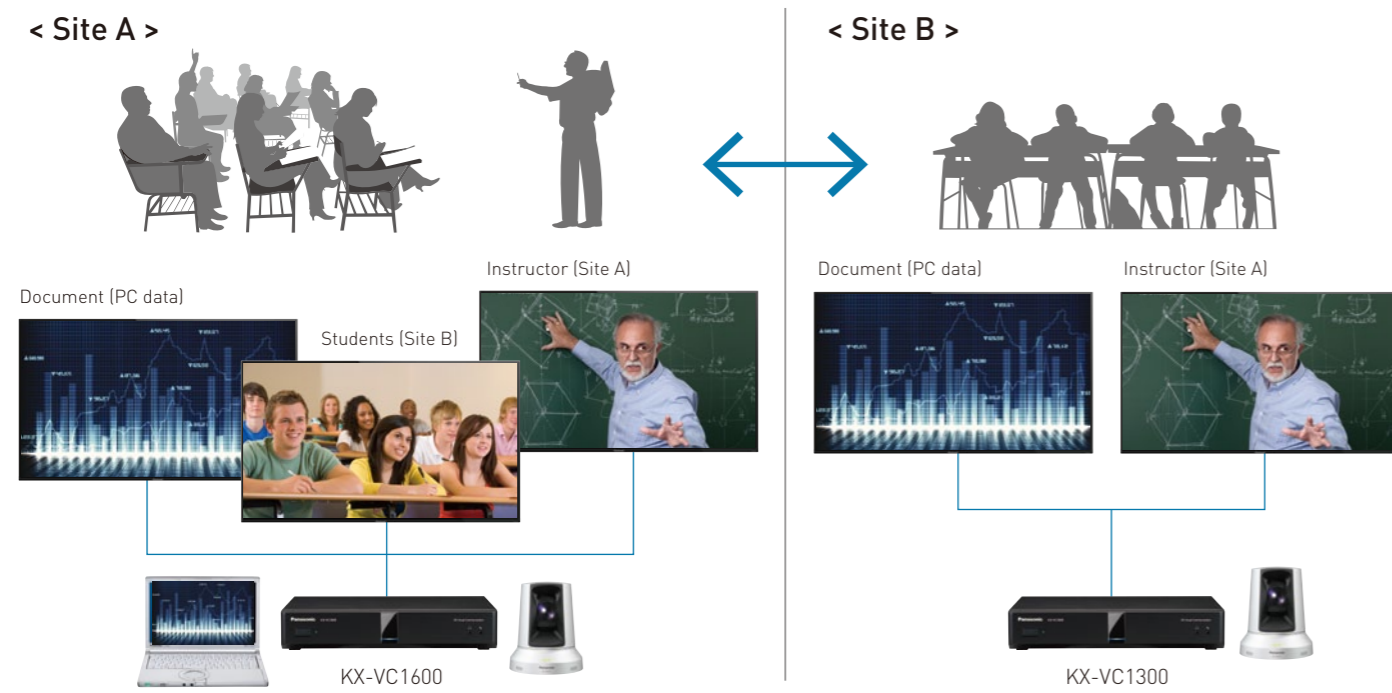
# Easy to use

Triple Monitor (Supported only by the KX-VC1600)

## Accurate communication of information

The HDVC System supports H.239 dual streaming to simultaneously transmit the home location image and a PC document image and to simultaneously receive the image of a distant site and a PC document image. The KX-VC1600 features a Triple Monitor function\*, which can display a PC document, the image of a distant site and the image of the home location separately on three monitors. Display of a PC document on a large screen facilitates understanding and provides effective visual communication.

\* The KX-VC1300 supports Dual Monitor.

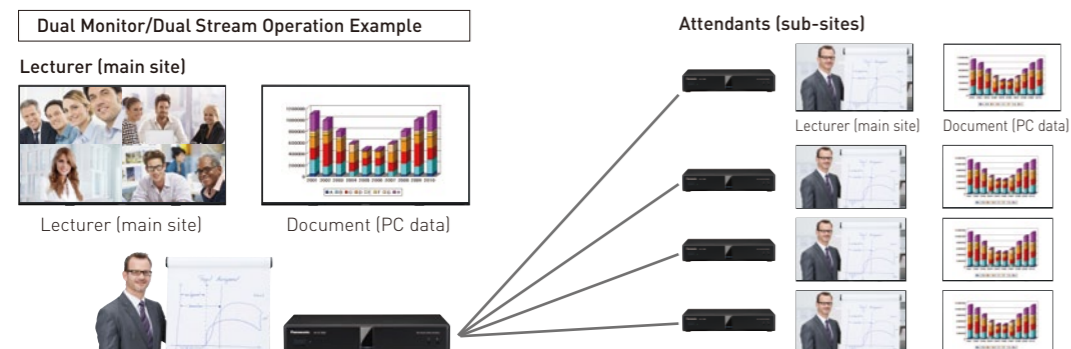


## Easy-to-understand remote lectures and seminars are conducted at multiple sites

The lecturer can proceed with the lecture while watching the conditions of the people attending at multiple sites, and the attendants can display reference materials and the image of the lecturer on separate screens. The easy-to-see screens make it easier to understand the content of the lecture.

### ■ Presentation Mode

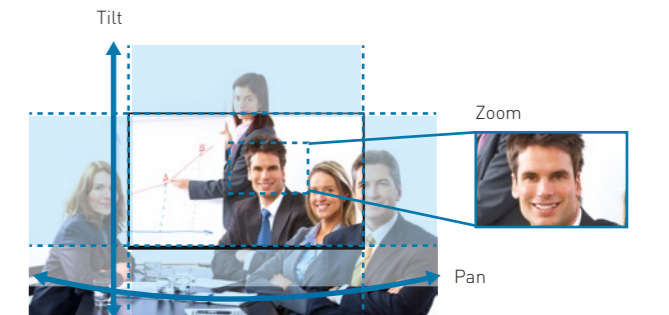
This mode is suited to lectures where the main site displays composite images of the sub-sites, and the sub-sites display only the main site image.



Camera Control

## Intuitive operation

The remote control of the HDVC System lets you control the pan, tilt and zoom operations of dedicated cameras mounted at the home location and a distant site. A PC and sub camera can be easily switched with a single press of the button. The remote control features a user-friendly button layout just like that on a TV remote control, thus allowing intuitive operation.



The diagram shows a camera with arrows indicating its range of motion: ±100° for Pan, ±30° for Tilt, and a magnified view for Zoom.

- Pan** HD Communication Camera lens rotates ±100° in horizontal direction. Applicable models: GP-VD151, GP-VD131
- Tilt** HD Communication Camera lens rotates ±30° in vertical direction. Applicable model: GP-VD151 (±20° in GP-VD131)
- Zoom** Optical zoom enlarges images up to 12 times. Applicable model: GP-VD151 (3x optical zoom in GP-VD131)

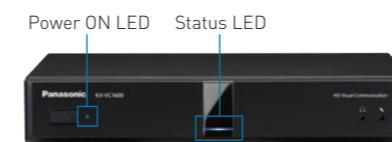
## External control of Power ON/OFF

The main unit of the HDVC System can be turned ON/OFF from the remote control and also from the external device connected to the serial interface.

\* When power is supplied to the main unit of the HDVC System from the AC adaptor, the system enters standby status.

\* The HDVC System can be turned ON/OFF using the Power switch on the main unit or on the remote control.

### Power ON/OFF and Status Indicators



Status	Power ON LED	Status LED	Operation
Power supplied from AC adaptor	Red light	Light OFF	—
Power ON - Startup	Green flashing light → Green light ON	Blue flashing light	Press and hold the Power button on main unit/remote control.
Communicating	Green light	Blue light	—
Standby	Green light	Light OFF	Press once the Power button on remote control.
Shutting down	Green flashing light	Light OFF	Press and hold the Power button on main unit/remote control.
Forced shutdown	Green flashing light	Blue flashing light	Press and hold the Power button on main unit.

\* If the main power switch has turned off due to a power outage or by manual operation (example, disconnection of extension cord), the HDVC System starts up in the previous status (Ready or Stand-by) next time power is supplied.

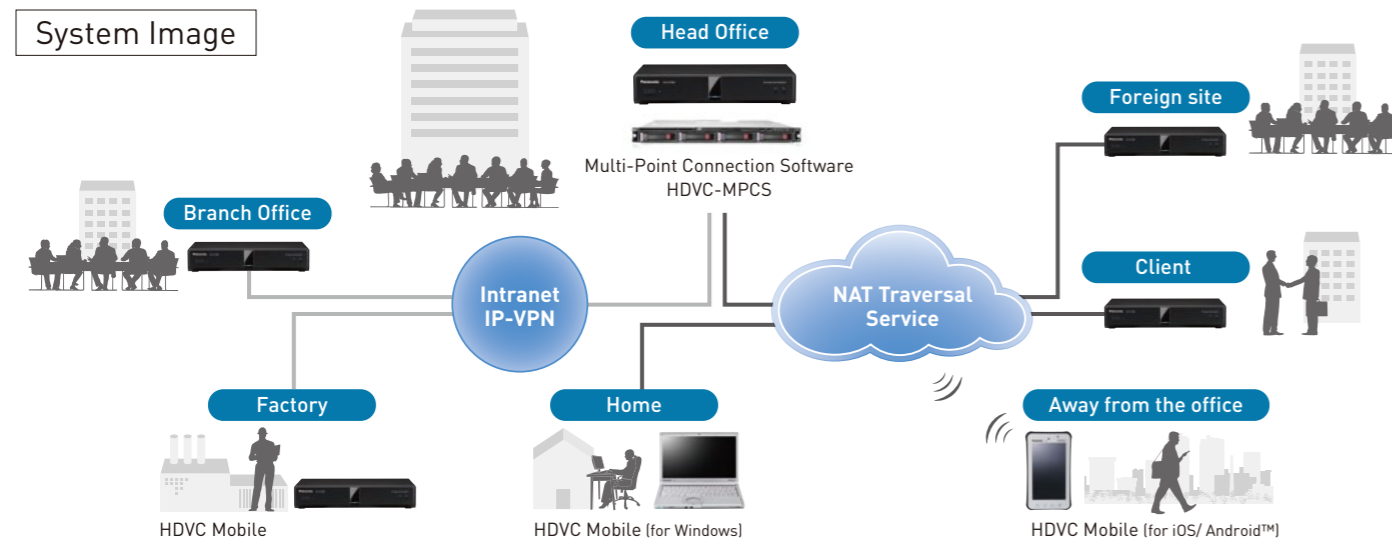
# HD Visual Communications Multi-Point Connection Software\*

\* HD Visual Communications Multi-Point Connection Software is abbreviated as HDVC-MPCS hereafter.

HDVC-MPCS (multi-point connection software) allows 6-site, 8-site, 12-site or 16-site configuration to meet the user's multi-site videoconferencing need. The number of connection sites can be increased from 8 to 12 or from 12 to 16 after the product purchase.

\* A server is required for multi-site connection.

\* In the case of 6-point connection software, the number of connection sites cannot be increased after the product purchase.



- Use of HDVC Mobile requires a bandwidth of 256 kbps or higher (video: QVGA [Android™]/W432p [Windows], audio: G.722 monaural) for the transmission/reception of video and audio data.
- When using HDVC Mobile with the TOUGH PAD FZ-X1 series, earphones or earbuds with built-in microphones are required.
- In the case of LTE communication, the bandwidth may become restricted depending on the amount of packets. For details, contact the telecommunications company.

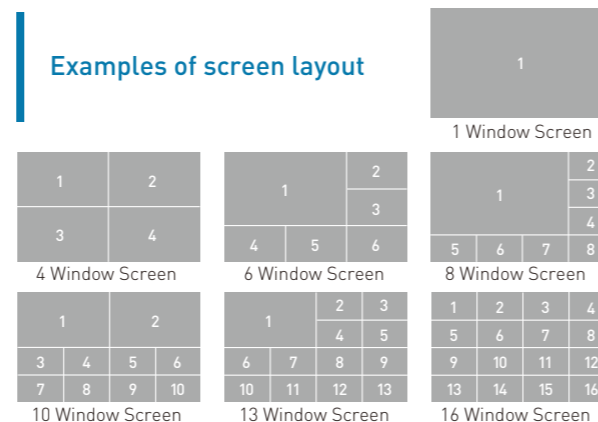
## Features of HDVC-MPCS

### Choose the Screen Layout to Match Your Situation

The screen layout can be selected to match the user's need, thus allowing flexible videoconferencing.

- Auto Layout Change**: The screen layout automatically changes according to the number of HD Visual Communications Systems participating.
- Manual Layout Change**: Change the layout manually while the meeting proceeds.
- Fixed Layout**: Determine the screen layout based on ones that you have set in advance.
- Voice Switching**: Display the participating device with the highest sound volume as Priority 1 (upper left screen).

### Examples of screen layout



### Easy-to-see images even in multi-site connection setup

The HDVC System supports H.264 High Profile to display HD images at low bandwidths [512 kbps].

\* HDVC Mobile (for iOS/Android™) displays SD images.

### Multi-speed communication for display of images with optimum image quality

HD images and SD images are transmitted separately. Each of the sites can use the image quality that is optimal for the available communication speed, rather than having to match to the lowest speed.

### Participation in the videoconference from an outside location

A tablet, smartphone or PC installed with HDVC Mobile, an application developed exclusively for the HDVC System, lets you participate in a videoconference while you are on the go.

\* An Activation Key is required to use the software. For details, see page 16.



## Main Specifications

HD Visual Communications Multi-Point Connection Software (HDVC-MPCS)	
No. of Simultaneous Conferences	1 conference
Number of Sites in Conference	Up to 16 sites*1
Connection Modes	IP mode, NAT Traversal Service*2
Bandwidth Setting	2Mbps / 1.5Mbps / 1.0Mbps / 768kbps / 512kbps / 384kbps*3
Call Control	Standard SIP
Connection Method	Dial-in / Dial-out based on web operation / Dial-out by external control interface*4
QoS	ARQ (Automatic Repeat-Request) Video, audio ARC (Audio Return Channel) Video
Video	Transmission Profile H.264 Baseline Profile Level 3.1 / H.264 High Profile Level 3.1
Capacity	Video Resolution 720p/w432p*5 PC Resolution VGA / SVGA / XGA / 720p
Reception	Video Resolution 720p / 4SIF / w432p / w288p / VGA / QVGA
Capacity	PC Resolution VGA / SVGA / XGA / 720p Compatible Profile H.264 Baseline Profile Level 1.3-3.1 / H.264 High Profile Level 3.1
RTP/MTU Size	1,240 bytes (video packet)*6
RTP Format	RFC 6184 compliant (Single NALU/non-interleaved)
Audio	Codec Profile G.722 / G.722.1c
RTP/Transmittance Interval	20 msec
Encrypted Communication	AES128*7
Screen	No. of Screen Windows CP1 / CP4 / CP6 / CP8 / CP10 / CP13 / CP16
Display	Display Content Screen Layout mode. An appropriate layout displays images from connected sites.*8 Presentation mode.*9 HDVC images shared by PCs are displayed full-size.*10
Meeting Modes	Normal mode / Ad-Hoc mode
Web User interface	Settings Management Basic Device Settings / Meeting Room Management (Status Display/Profile Settings) / Static NAT Settings / NAT Traversal Settings
Operations	Meeting Start (Dial-Out Transmission)/End / Layout Control / Display Position Control / Mute Control / NAT Traversal Test Suppress NAT Traversal Messages
Log	Log Acquisition/Display
Address Book	Max. 200 addresses
Configuration Data Backup	Backup / Restore Function*11
Language	Japanese / English
External Control	Meeting Settings, Start/End, Status Acquisition/Control, Profile Settings
License Management	By software license*12
CPU	Intel CPU 4 core 3.4 GHz or faster
Memory	RAM 8 GB or more
Amount of free HD space	HDD 32 GB or more*13
OS	Red Hat Enterprise Linux v6 64bit Cent OS6.4 64bit

\*1 Connectable with KX-VC1600, KX-VC1300, KX-VC300, iOS/Android™ devices, and Windows PCs. Connection is not possible with an other brand device or an MCU. \*2 Not compatible with NGN. \*3 When holding a meeting, the maximum bandwidth per site must be decided in advance. \*4 Dial-out by web reservation is under consideration for the future. \*5 Maximum resolution and max. frame rate is 720p30p. \*6 Depends on PC setting. \*7 Key exchange using MIKEY. \*8 All sites displayed simultaneously. \*9 This function displays a PC screen. \*10 Sub-camera images can also be shared. \*11 Backup data cannot be edited. \*12 Function activation (CP6, CP8, CP12, CP16) and 4-site addition function. \*13 Not including OS space.

Connectable Devices  
 • Refer to the following website for information on Android™ and Windows devices.  
 <Android> [http://panasonic.net/psn/products/hdvc/product/mobile\\_android/popup/english.html](http://panasonic.net/psn/products/hdvc/product/mobile_android/popup/english.html)  
 <Windows> [http://panasonic.net/psn/products/hdvc/product/mobile\\_android/popup/english\\_win.html](http://panasonic.net/psn/products/hdvc/product/mobile_android/popup/english_win.html)  
 • Windows PCs that satisfy the following requirements can be connected. CPU: Core i5 (4 thread) or higher; OS: Windows® 7 or Windows® 8 (using Desktop; Modern UI not supported)

### Server Specifications (6-site KX-VCM206W)

Item	Details
CPU	Intel Core i7 or Xeon E3-1280
Clock (GHz)	3.4 GHz
No. of CPUs	1
Cores/threads	4/8
Cache	8 MB
Memory	8 GB or more
Hard disk free space	128 GB or more (Not including OS space)

### Server Specifications (8 sites or more)

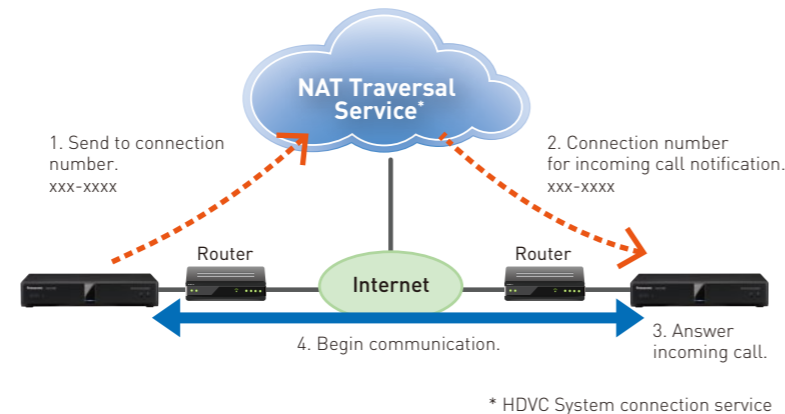
Item	Details
CPU	Intel Xeon X5690
Clock (GHz)	3.46 GHz
No. of CPUs	1 or more
Cores/threads	6/12
Cache	12 MB
Memory	8 GB or more
Hard disk free space	128 GB or more (Not including OS space)

### Server OS

Item	Details
OS	CentOS_6.4_final 64bit Red Hat Enterprise Linux Server release 6.4 64-bit

# NAT Traversal Service

NAT Traversal Service is a network service offered exclusively for use by the HDVC System. It can be used to hold a videoconference between your company and other sites. It enables easy establishment of a communication environment without complex router settings, and uses Internet line for economical operation.



## Advantages of NAT Traversal Service

### Connection from a location outside the company such as a business trip destination

Use of Internet line instead of a VPN facilitates the connection from an office in the company, a customer's site or a client.



### Excellent cost-performance

Use of Internet line means no initial investment for the construction of a VPN. Furthermore, there is no need to obtain a fixed global IP address, so the running costs can be reduced significantly.

## Service Details and Specifications

### How to Use the Service

- A free trial Activation Key is included with the system. By using this key to register, you can use the service for three months.
- To use HDVC-MPCS with NAT Traversal Service, please purchase an Activation Key.
- In order to continue using the NAT Traversal Service after the trial period ends, you must purchase a paid activation key to extend the connection function expiration date. For details, please consult your nearest dealer.

### NAT Traversal Service

Tested Routers	<p><b>[US]</b> Cisco Linksys E1000, E4200 / NETGEAR N300, N750  <b>[Europe]</b> Cisco Linksys E1000, E4200 / NETGEAR N300, N750 / LANCOM 1711VPN  <b>[Japan]</b> YAMAHA RTX1200, RTX1100, NVR500, RTX3500, RTX1210  <b>[Canada / Latin America / Oceania / Asia]</b></p> <p>Please select one of the routers designated for use in the US, Europe and Japan.</p> <p>* You may not be able to connect depending on your router settings. Please check with your nearest dealer. For other routers, please check the NAT Traversal Service website. <a href="http://panasonic.net/psn/products/hdvc/nat/index.html">http://panasonic.net/psn/products/hdvc/nat/index.html</a></p>
Applicable Models	<p>KX-VC1600, KX-VC1300, KX-VC300*, HDVC-MPCS</p> <p>*1 Android™ terminal connection is possible with software version 3.0 or newer.</p>

- Use a router that suits the usage conditions. For details, consult with your dealer.
- Contracts for an Internet line (an optical line is recommended) and an Internet service provider are also required.
- Usage restrictions on the communication data amount and the bandwidth may apply depending on the service provider.
- Please do not connect multiple HD Visual Communications Systems to a single router.
- Connection between the HD Visual Communications System and Android™ terminals is a 1:1 connection. Android™ terminals cannot be connected to each other.
- The communication bandwidth for the Android™ terminal may be limited by the packet amount. For details, please contact your Internet service provider.
- The packet amount for the Android™ terminal may increase due to the sending and receiving of motion images. This should be considered when concluding the communications contract with your Internet service provider.
- HDVC Mobile cannot be used with 3G devices because the bandwidth is likely to be insufficient.
- A bandwidth that supports 384 Kbps or more is required to use HDVC Mobile for sending and receiving images and sound (for QVGA video and G.722 monaural audio).
- A separate earphone is required to use HDVC Mobile with the ELUGA Series. A headset is required for use with the TOUGHHPAD JT-B1 Series.
- The paid activation key cannot be returned for a refund once it has been used.
- Legal regulations prevent the supply of this service to China.
- For the latest information, please check the NAT Traversal Service website.
- HDVC Mobile devices cannot be directly connected to each other. However, they can be connected via HDVC-MPCS.
- To connect the HDVC-MPCS to the NAT Traversal Service, the NAT Traversal Service must be registered.
- A bandwidth of 256 Kbps or higher is required for sending and receiving images and sound with HDVC Mobile (video: QVGA Android/W432p [Windows], audio: G.722 for monaural).
- To ensure security in the event that you lose a smartphone or tablet, be sure to set the Screen Lock function.

### NAT Traversal Service Area

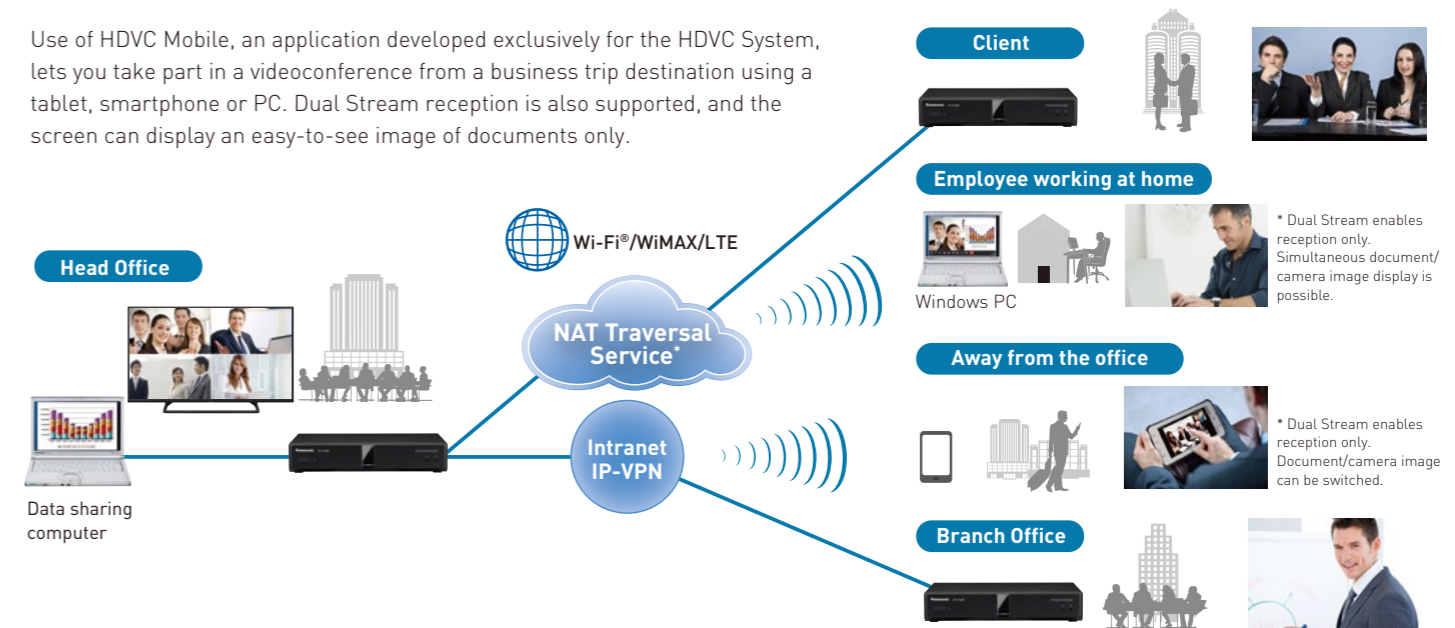
Japan, Asia, China, Middle East, Africa, North America, Europe

- The NAT Traversal Service is a global service, but some restrictions exist due to network and router conditions. Customers using an HD Visual Communications System that is compatible with the NAT Traversal Service may try the service free of charge.

# HD Visual Communication Mobile\*

\* Activation Key is required to use the software. For detail, see page 16.

Use of HDVC Mobile, an application developed exclusively for the HDVC System, lets you take part in a videoconference from a business trip destination using a tablet, smartphone or PC. Dual Stream reception is also supported, and the screen can display an easy-to-see image of documents only.



### Easy mobile connection

If you set a "Mobile Connection Expansion" Activation Key in the HDVC System, you can connect the desired number of mobile devices simultaneously without having to purchase an Activation Key for each mobile device. (Maximum of 9 devices for the KX-VC1600, and 3 devices for the KX-VC1300.) If you are connecting a small number of devices, you can set an Activation Key in each mobile device.

- "HDVC Mobile" must be installed in the mobile devices being used.
- Standard mode can be used. When using the NAT Traversal Service, an iOS/Android™ or Windows™ Mobile Activation Key is required.
- The HDVC System requires software Version 4.2, and the device requires Version 3.1 or higher.

## Device (As of December 2015)

### HDVC Mobile for Windows

CPU	CPU:Core i5 (4 threads) or faster. Memory:2GB or over
OS*1	Windows 7 / Windows 8 / Windows 8.1 / Windows 10
Display Resolution	1366 x 768 or over
Peripheral devices	Camera*2
	Headset*3
	Speaker / Microphone
	Web camera microphone

\*1 Windows 8:Modern UI is not supported. Windows 10:Tablet mode is not supported.  
 \*2 720p supported  
 \*3 USB type

### HDVC Mobile for iOS

CPU	Apple A5 or over
OS	iOS 7.0 - 9.1. iPhone, iPad, iPad mini are available. iPod touch is unavailable.

### HDVC Mobile for Android

CPU	Cortex-A9 or over NEON supported
OS	Android 4.0 - 5.1
Peripheral Device	SAMSUNG:Galaxy S6 SC-05G, Galaxy S6 Edge SC-02G

Please check the HDVC Mobile website for the latest information. [http://panasonic.net/psn/products/hdvc/product/mobile\\_android/index.html](http://panasonic.net/psn/products/hdvc/product/mobile_android/index.html)

- For communication using a provider service, the communication speed may be limited by the packet amount. For details, please contact your provider.
- For communications using a provider service, the packet transmission amount may increase due to sending motion images. Be sure to check the contract with your provider.
- Communication may not be possible, or the quality may drop due to the provider's network specifications. Try a free, trial 3-month Activation Key in advance.
- The 3G bandwidth may be insufficient for HDVC Mobile, making it unusable.
- HDVC Mobile communication may not be possible due to the device features. Communication may also not be possible due to tethering.
- Use of HDVC Mobile requires a bandwidth of 256 kbps or higher (video: QVGA [Android™]/W432p [Windows], audio: G.722 monaural) for the transmission/reception of video and audio data.

# Product Line-up

## Enhanced Model KX-VC1600

(Remote control included. HD Communication Camera, Boundary Microphone and HDMI cable sold separately.)



- 10-Site\*1 Connection
- Multicast \*1
- Dual Network
- Multi Device
- Triple Monitor
- Profile Registration
- Broadband Stereo Full Duplex Audio
- Full-HD 1080/60p
- AV-QoS
- Camera Control
- Rec terminal

\*1 Option must be purchased. (Refer to "Activation Key" on page 16.)

## Basic Model KX-VC1300

(Remote control included. HD Communication Camera, Boundary Microphone and HDMI cable sold separately.)



- 4-Site Connection
- Multicast \*1
- Multi Device
- Dual Monitor
- Profile Registration
- Broadband Stereo Full Duplex Audio
- Full-HD 1080/60p
- AV-QoS
- Camera Control

## KX-VC300

(Remote control included. HD Communication Camera, Boundary Microphone, HDMI cable sold separately.)



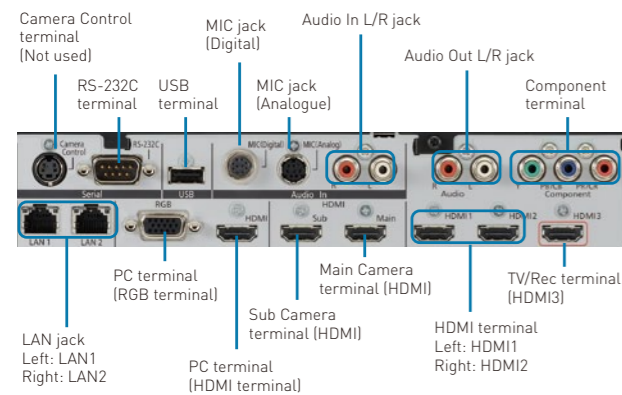
- 4-site\*2 connection
- Multicast \*1
- HD 720p video quality
- Connection of product of different manufacturer
- MCU connection
- PC connection
- Sub Camera connection
- Analogue Boundary Microphone (1 unit)

\*2 Activation Key (sold separately, see page 16) expands the function to enable 4-site connection.

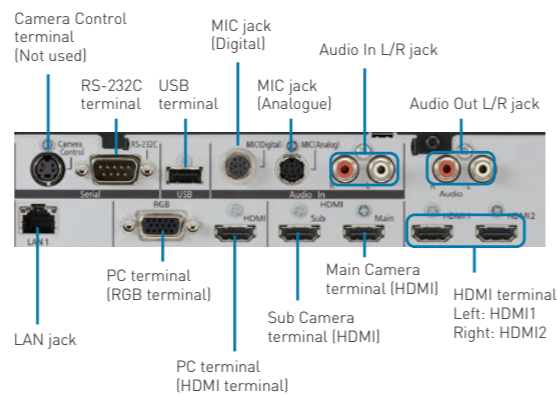
### TV Stand Installation Examples



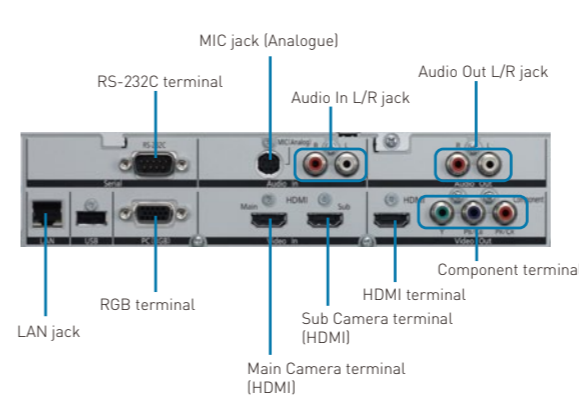
### [ Rear Panel View ]



### [ Rear Panel View ]



### [ Rear Panel View ]



### Function Comparison List

	Maximum Conference Points	Image Resolution	Monitor	Other-brand Device Connection*1	MCU Interoperability*2	Computer Connection	Digital Boundary Microphone (KX-VCA001)	Analogue Boundary Microphone (KX-VCA002)
KX-VC1600	6 <sup>3</sup>	Full HD 1080/60p	3	Yes	Yes	Yes	Yes (1-4 unit)	Yes (1 unit)
KX-VC1300	4	Full HD 1080/60p	2	Yes	Yes	Yes	Yes (1-4 unit)	Yes (1 unit)
KX-VC300	2 <sup>4</sup>	HD 720p <sup>5</sup>	1	Yes	Yes	Yes	No	Yes (1 unit)

\*1 Please ask your nearest dealer about other-brand devices that can be connected.  
 \*2 Please ask your nearest dealer about MCUs that can be connected.  
 \*3 The optional Activation Key lets you expand the KX-VC1600's maximum conference points to up to 10 locations. (Refer to "Activation Key" on page 16.)  
 \*4 The KX-VC300 also allows connection of 3 or 4 locations when it is on the receiving end of a call. The optional Activation Key lets you expand the KX-VC300's maximum conference points to up to 4 locations. (Refer to "Activation Key" on page 16.)  
 \*5 The optional Activation Key lets you upgrade the maximum resolution of the KX-VC300 system to 1080p/i. (Refer to "Activation Key" on page 16.)



## HD Communication Camera

### GP-VD151 Full-HD

(HDMI cable sold separately)  
 • 12x Optical zoom/10x digital zoom  
 • Pan/tilt function

\* An optional wireless remote control (AW-RM50G) is required to make detailed settings.

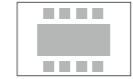


[10 to 80 m²]



### GP-VD131 Full-HD

(HDMI cable sold separately)  
 • 3x Optical zoom/4x digital zoom  
 • Pan/tilt function



[10 to 40 m²]



### AW-VC2 Full-HD

(HDMI cable sold separately)  
 • 4x Digital zoom  
 • Pan/tilt function (manual and digital)  
 • Ceiling-mountable



[10 to 20 m²]



## Boundary Microphone

### Digital Boundary Microphone KX-VCA001

(Cable approx. 8.5 m) included  
 • A high-grade microphone with a direction recognition function that detects the direction of the speaker's voice



### Analogue Boundary Microphone KX-VCA002

(Cable approx. 7 m) included  
 • A compact, economical and high-grade stereo microphone



### Extension Cable for the Digital Boundary Microphone KX-VCAEX01

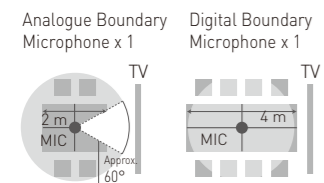
• For use in setting up the HDVC System in a place where the cable provided with the Digital Boundary Microphone cannot reach.  
 • Connect the extension cable directly to the HDVC System. Connection is not possible with the cable that comes included with a digital boundary microphone.  
 • 20 m



Allows flexible system setup according to the number of connection sites and the size of room.

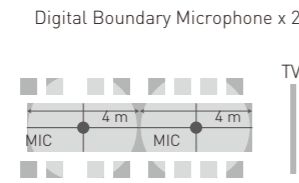
< Sound collecting ranges of microphones >

#### Up to 40 m² (1-10 people)



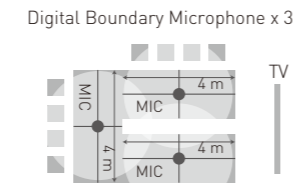
\*The Analogue Boundary Microphone exceeds the sound-collecting range at an angle of about 60° on the connector side.

#### Up to 80 m² (Up to 20 people)



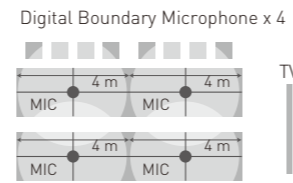
\*This diagram is intended only as a layout example. It is not meant to show the maximum number of people that can be covered.

#### Up to 120 m² (Up to 30 people)



\*This is the pick-up capacity when using the Digital/Analogue Boundary Microphone. The capacity varies when using another microphone.

#### Up to 160 m² (Up to 40 people)



## Activation Key

### For HD Visual Communications Unit

Type	Detail	Model
KX-VC1600 / KX-VC1300 / KX-VC600 / KX-VC300	Enables the multicast (one-way transmission) feature.	KX-VCS302
KX-VC1600 / KX-VC1300	Connects to a mobile device in IP Mode.	KX-VCS351
KX-VC1600	Upgrade standard 6-site connection to 10-site connection.	KX-VCS304
KX-VC300	Upgrade standard 2-site connection to 4-site connection.	KX-VCS301
KX-VC300	Upgrade to Full-HD Image Quality	KX-VCS401

### For NAT Traversal Service

Type	Detail	Model
For the HD Visual Communications System	NAT Traversal Service Activation Key - 1 Year	KX-VCS701
	NAT Traversal Service Activation Key - 3 Years	KX-VCS703
For a Windows Terminal	Mobile Activation Key - 1 Year for Windows	KX-VCS781
	Mobile Activation Key - 3 Years for Windows	KX-VCS783
For an Android™ and an iOS Terminal	5 Mobile Activation Keys - 1 Year (5 keys)	KX-VCS751X
	5 Mobile Activation Keys - 3 Years (5 keys)	KX-VCS753X
	Mobile Activation Key - 1 Year	KX-VCS711W
	Mobile Activation Key - 3 Years	KX-VCS713W

## Software License Card for HDVC-MPCS

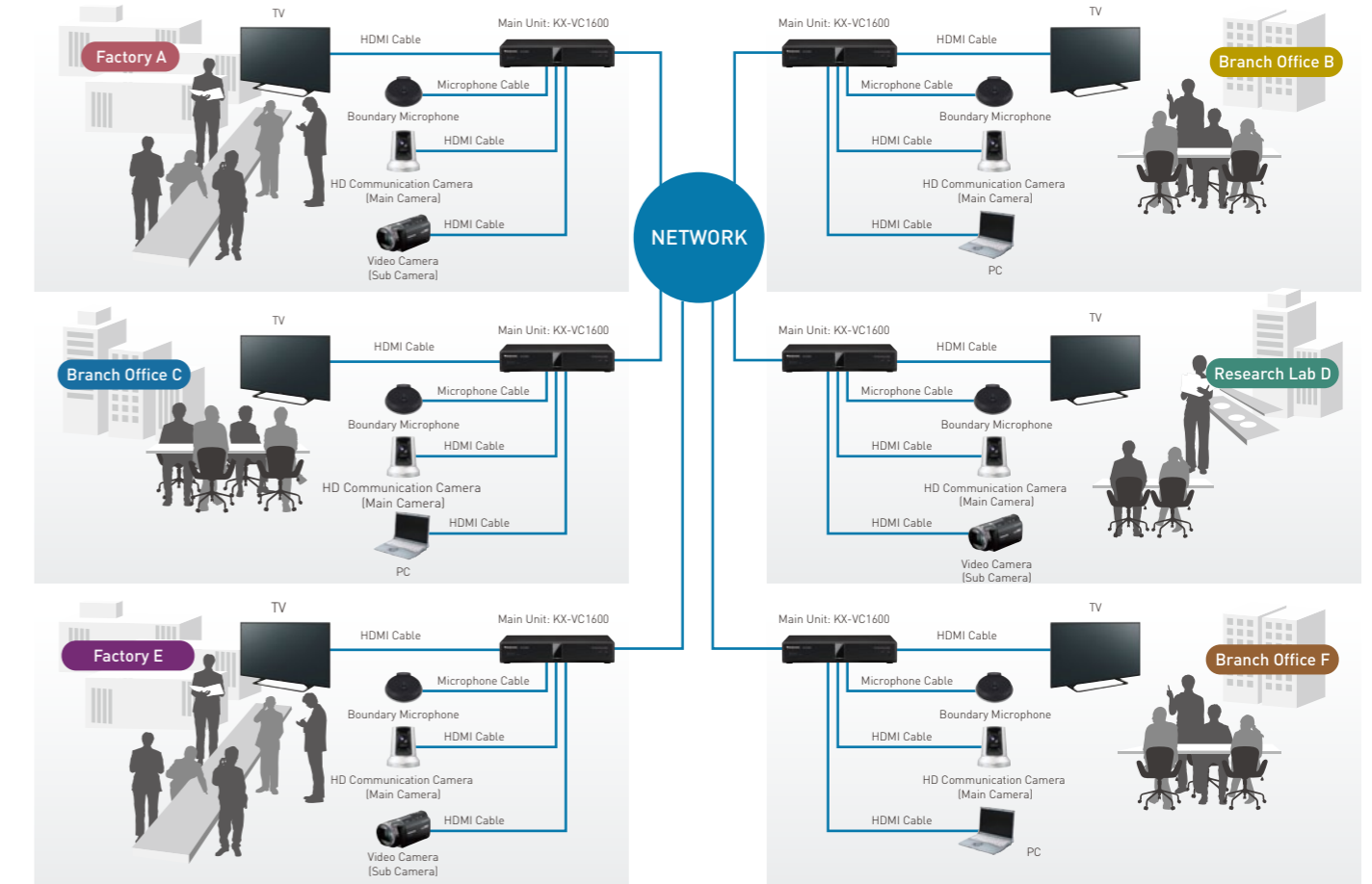
Detail	Model
MPCS Ver. 2.0 6-Site Model <sup>*1</sup>	KX-VCMS206
MPCS Ver. 2.0 8-Site Model	KX-VCMS208
MPCS Ver. 2.0 12-Site Model	KX-VCMS212
MPCS Ver. 2.0 16-Site Model	KX-VCMS216
MPCS 4-Site Expansion	KX-VCMS001
MPCS Upgrade 6-Site <sup>*2</sup>	KX-VCMS206
MPCS Upgrade 8-Site <sup>*2</sup>	KX-VCMS208
MPCS Upgrade 12-Site <sup>*2</sup>	KX-VCMS212
MPCS Upgrade 16-Site <sup>*2</sup>	KX-VCMS216

\*1 In the case of 6-point connection software, the number of connection sites cannot be increased after the product purchase.

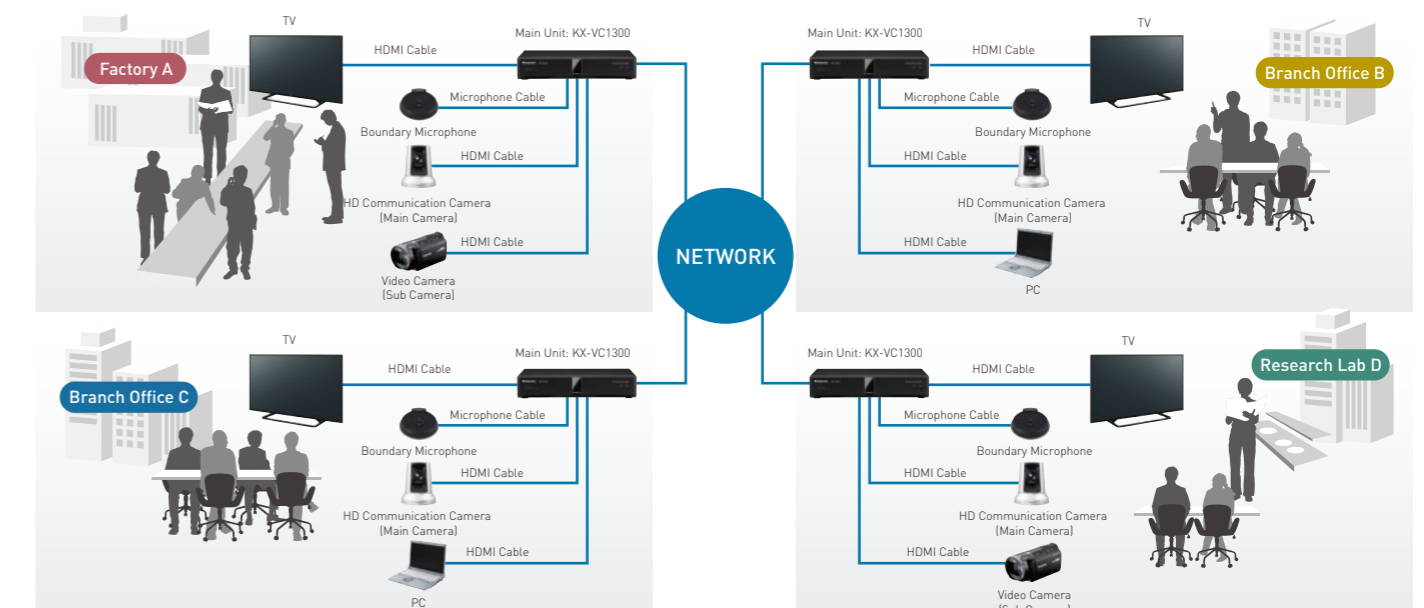
\*2 The license cards let you upgrade from HDVC-MPCS Ver. 1.0 to Ver. 2.0.

## Example of standard 6-site connection with the KX-VC1600

The 4-site connection expandability can be used with the KX-VC1600 to increase the number of connection sites to a maximum of 10 sites including home location.



## Example of standard 4-site connection with the KX-VC1300



# Specifications

## KX-VC1600/ KX-VC1300

Main Unit		KX-VC1600	KX-VC1300
Terminal Method		SIP, H.323	
Image Compression Method		H.261 (mainstream only), H.263, H.263+, H.263++ (reception only), H.264 High Profile, H.264 Baseline Profile	
Audio Compression Method		G.711 μ-law, A-law (3.4 kHz@64 kbps) G.722 (7.0 kHz@64 kbps) G.722.1 (7.0 kHz@32 kbps) G.722.1 Annex C (14.0 kHz@48 kbps/24 kbps) MPEG-4 AAC-LD Mono (7.0 kHz@32 kbps, 14.0 kHz@64 kbps, 22.0 kHz@96 kbps) MPEG-4 AAC-LD Stereo (14.0 kHz@64 kbps, 22.0 kHz@96 kbps)	
No. of Channels		G.711/G.722/G.722.1/G.722.1 Annex C: 1 MPEG-4 AAC-LD Mono: 1/ MPEG-4 AAC-LD Stereo: 2	
Remote Camera Control		H.224, H.281 (Zoom/Pan/Tilt/Preset)	
Dual Stream	Method	H.239 (H.323), BFCP (SIP)	
	Multi-Monitor	3 Monitors	2 Monitors
No. of Applicable Resolution Frames		Main: Max. 1080p 30 frames/second, Sub: Max. 1080p 30 frames/second	
Encryption		SRTP (AES 128 bit), H.235 (AES 128 bit)	
Other		H.460.18, H.460.19	
Communication Bandwidth		256 kbps to 18 Mbps	
Video	Compatible Resolutions <sup>1</sup>	176 x 144p, 352 x 240p, 352 x 288p, 512 x 288p, 640 x 480p, 704 x 480p, 704 x 576p, 768 x 432p, 800 x 600p 1024 x 768p, 1280 x 720p, 1280 x 768p, 1280 x 800p, 1920 x 1080p	
	No. of Frames	Max. 60 frames/second (for H.264 1080p)	
	Screen Display	Full-screen, PinP, PwithP, Side by Side	
Audio		Echo canceller, Auto gain control, Stationary noise reduction, Lip synch, Equalizer, Mic mute	
I/O Terminals	Video Input	HDMI main x 1, HDMI sub x 1 Input compatible resolution: 1280 x 720p, 1920 x 1080i, 1920 x 1080p	
	Camera <sup>2</sup>	RGB x 1 (Mini D-sub 15pin), HDMI x 1 <sup>3</sup> Input compatible resolution: VGA, SVGA, XGA, HD, WXGA, SXGA, FWXGA, WXGA+, UXGA, WSXGA+, Full-HD	
Video Output		HDMI x 2, HDMI x 1 (for Self Base/Record) RCA x 1 (Component) Output compatible resolution: 1920 x 1080i, 1920 x 1080p	HDMI x 2 Output compatible resolution: 1920 x 1080i, 1920 x 1080p
Audio Input		Digital Boundary Microphone x 1 (KX-VCA001), Max. 4; Analogue Boundary Microphone x 1 (KX-VCA002), Max. 1 HDMI, Stereo mini-plug <sup>3</sup> x 1 (ø3.5 mm) RCA (Stereo) x 1	
Audio Output		HDMI <sup>4</sup> , Stereo mini-plug <sup>3</sup> x 1 (ø3.5 mm), RCA x 1 (Stereo)	
Network		RJ45 x 2 (100BASE-TX Full Duplex)	
External Control		RS-232C x 1 (Also used for maintenance)	
Others		USB 2.0 x 1, Camera Control Terminal x 1 (Unused)	
No. of Simultaneous Connection Sites		6 (Expandable up to 10)	4
Content Sharing		PC (RGB/HDMI), Sub-camera (HDMI sub)	
USB Memory		Version upgrade Import: Setting Address Book / Profile / Structural Data / Encryption Data / Start-up Screen / Delivery Tree List Export: Address Book / Profiles / Structural Data / Encryption Data / Delivery Tree List	
Network Protocol		TCP/IP v4, TCP/IP v6 <sup>5</sup> , UDP/IP v4, UDP/IP v6 <sup>5</sup> , DHCP, DNS, HTTP, HTTPS, TELNET, NTP	
Network Functions		Automatic Repeat Query (ARQ), Forward Error Correction (FEC), Adaptive Rate Control (ARC), Reorder, Packet Shaping, Arbitrary Port Setting, NAT Compatibility, Encryption, IP Precedence/DiffServ Support	
External Control		Via Web Browser, Control by HTTP CGI, TELNET, RS-232C	
Connection Modes		IP mode, NAT Traversal Service, IP mode / NAT Traversal Service mode	
Dimensions (width x depth x height)		Approx. 320 mm x approx. 230 mm x approx. 61 mm	
Weight		Approx. 2.0 kg	
Power Input		AC 100-240 V, 1.4A, 50/60 Hz	
Power Consumption		Maximum: approx. 45 W, Standby: 0.6 W	Maximum: approx. 43 W, Standby: 0.6 W
DC Power Input		DC 24 V, 2.5 A	
Operating Temperature		0 °C to 40 °C	
Operating Humidity		10 % to 90 % (non-condensing)	

\*When connected to an other brand device or other brand MCU (Multi-point Control Unit), connection conditions vary depending on the specifications of the other brand device or other brand MCU.

\*1 Varies due to the settings of the HDVC System and the network condition.

\*2 HDCP is not supported.

\*3 Dedicated 3-pole stereo mini-plug.

\*4 Audio cannot be output simultaneously to HDMI1/HDMI2.

\*5 Some functions are not supported by IPv6.

## HD Communication Camera

HD Communication Camera	GP-VD151	GP-VD131	AW-VC2
Effective Pixels	1920x1080i, 1920x1080p		
Pan / Tilt	Pan: ±100°, Tilt: ±30°	Pan: ±100°, Tilt: ±20°	(Manual) Pan: ±180°, Tilt: ±20° (Electronic) Pan: ±23°, Tilt: ±14°*
Zoom (optical/digital)	12x / 10x	3x / 4x	No optical zoom / i.Zoom 2x**, Digital zoom 4x
Angle of view (optical zoom)	Horizontal angle of view 56.3° (Wide end) - 5.1° (Tele end) Vertical angle of view 32.5° (Wide end) - 2.8° (Tele end) F1.6 (Wide end) - F2.0 (Tele end)	Horizontal angle of view 85° (Wide end) - 30° (Tele end) Vertical angle of view 68.4° (Wide end) - 23.8° (Tele end) F1.2 (Wide end) - F2.0 (Tele end)	Horizontal angle of view 95° (Wide end) Vertical angle of view 56° (Wide end) F2.0 (Wide end)
Presets	9 positions		
Connection Cable	HDMI		
Dimensions (width x depth x height)	Approx. 133 mm x approx. 127 mm x approx. 139 mm		Approx. 80 mm x approx. 138 mm x approx. 117 mm
Weight	Approx. 0.8 kg		Approx. 0.25 kg
Power Consumption	Approx. 150 mm x approx. 148 mm x approx. 177 mm Approx. 1.2 kg	Power supply voltage: 16 VDC±10% (with AC adaptor attached) Consumption current: 0.6 A	Power supply voltage: 5 VDC±10% (with AC adaptor attached) Consumption current: 0.8 A
Operating Temperature	Power supply voltage: 12 VDC±10% (with AC adaptor attached) 0 °C to 40 °C		
Operating Humidity	Consumption current: 1.0 A 10 % to 90 % (non-condensing)		

\*1 With i.Zoom 2x.

\*2 i.Zoom function maintains high-definition picture quality.

## KX-VC300

Main Unit		KX-VC300	
Terminal Method		SIP, H.323	
Image Compression Method		H.264 High Profile, H.264 Baseline Profile	
Audio Compression Method		G.711 μ-law, A-law (3.4 kHz@64 kbps) G.722 (7.0 kHz@64 kbps) G.722.1 (7.0 kHz@32 kbps) G.722.1 Annex C (14.0 kHz@48 kbps/24 kbps) MPEG-4 AAC-LD Mono (7.0 kHz@32 kbps, 14.0 kHz@64 kbps, 22.0 kHz@96 kbps) MPEG-4 AAC-LD Stereo (14.0 kHz@64 kbps, 22.0 kHz@96 kbps)	
No. of Channels		G.711/G.722/G.722.1/G.722.1 Annex C: 1 MPEG-4 AAC-LD Mono: 1/ MPEG-4 AAC-LD Stereo: 2	
Remote Camera Control		H.224, H.281 (Zoom/Pan/Tilt/Preset)	
Dual Stream	Method	H.239 (H.323) [Receive Only]	
	Multi-Monitor	-	
No. of Applicable Resolution Frames		Main: Max. 1080p 30 frames/second, Sub: Max. 1080p 30 frames/second	
Encryption		SRTP (AES 128 bit), H.235 (AES 128bit)	
Other		H.460.18, H.460.19	
Communication Bandwidth		256 kbps to 9 Mbps	
Video	Compatible Resolutions <sup>1</sup>	352 x 240p, 512 x 288p, 704 x 480p, 768 x 432p, 960 x 540p, 1280 x 540p, 1280 x 720p	
	No. of Frames	Max. 60 frames/second (for H.264 720p)	
	Screen Display	Full-screen, PinP	
Audio		Echo canceller, Auto gain control, Auto noise reduction, Lip synch, Mic mute	
I/O Terminals	Video Input	HDMI main x 1, HDMI sub x 1 Input compatible resolution: 1920 x 1080i	
	Camera <sup>2</sup>	RGB x 1 (Mini D-sub 15pin) Input compatible resolution: VGA, SVGA, XGA, HD, WXGA	
Video Output		HDMI x 1, RCA x 1 (Component) Output compatible resolution: 1080i	
Audio Input		Analogue Boundary Microphone x 1 (KX-VCA002), Max. 1 Stereo mini-plug x 1 (ø3.5 mm) RCA (Stereo) x 1	
Audio Output		HDMI x 1, Stereo mini-plug x 1 (ø3.5 mm), RCA x 1 (Stereo)	
Network		RJ45 x 1 (100BASE-TX Full Duplex)	
External Control		RS-232C x 1 (Also used for maintenance)	
Others		USB x 1	
No. of Simultaneous Connection Sites		2 <sup>3</sup>	
Content Sharing		PC (HDMI), Sub-camera (HDMI sub)	
USB Memory		Version upgrade Import/Export: Setting data, Address book	
Network Protocol		TCP/IP, UDP/IP, DHCP, DNS, HTTP, HTTPS, TELNET, NTP	
Network Functions		Automatic Repeat Query (ARQ), Forward Error Correction (FEC), Adaptive Rate Control (ARC), Reorder, Packet Shaping, Arbitrary Port Setting, NAT Compatibility, Encryption, IP Precedence/DiffServ Support	
External Control		Via Web Browser, Control by HTTP CGI, TELNET, RS-232C	
Connection Modes		IP mode, NAT Traversal Service	
Dimensions (width x depth x height)		Approx. 320 mm x approx. 230 mm x approx. 60 mm	
Weight		Approx. 2.0 kg	
Power Input		AC 100-240 V, 1.2A-0.6A, 50/60 Hz	
Power Consumption		Maximum: approx. 23 W, Standby: 17 W	
DC Power Input		DC 16 V, 2.5 A	
Operating Temperature		0 °C to 40 °C	
Operating Humidity		10 % to 90 % (non-condensing)	

\*When connected to an other brand device or other brand MCU (Multi-point Control Unit), connection conditions vary depending on the specifications of the other brand device or other brand MCU.

\*1 Varies due to the settings of the HDVC System and the network condition. An optional Activation Key enables the addition of a Full-HD (1080i/1080p) transmission function.

\*2 HDCP is not supported.

\*3 If an incoming call is received as a reception site, participation is possible with 3-4 site connection. An optional Activation Key allows expansion to a maximum of 4 connection sites.

When HDVC Mobile is connected, or when another-brand device or another-brand MCU is connected, the maximum is 2 connection sites.

## Boundary Microphone

Boundary Microphone	KX-VCA001	KX-VCA002
Maximum Pickup Range	Approx. 4 m (radius), 360°	Approx. 2 m (radius), 300°
Pickup Method	Stereo / Monaural *1	Stereo / Monaural *2
Microphone Unit	Unidirectional ECM microphone parts x 4	
Number of Connections	Maximum 4 microphones	Maximum 1 microphone
Maximum Input Sound Pressure	110 dBspl	
Number of Terminals for Microphone Connection	2	1
Dimensions	Approx. 120 mm (diameter) x 25 mm	Approx. 75 mm (diameter) x 32 mm
Cable Length	Approx. 8.5 m	Approx. 7 m
Power Input	Supplied from main unit via proprietary cable	
Weight	Approx. 280 g	Approx. 80 g
Operating Temperature	0 °C to 40 °C	
Operating Humidity	10 % to 90 % (non-condensing)	

\*1 If either of the following conditions is met, the output sent to the other party will be stereo; otherwise, monaural:

• The bandwidth is higher than approximately 1.8 Mbps in a 2-party videoconference call with the HDVC Unit using SIP.

• The MIC position is set manually to "Center stereo", or the MIC position is set automatically with a Digital Boundary Microphone connected to the unit and no Analogue Boundary Microphone connected to the unit at the same time.

\*2 If either of the following conditions is met, the output sent to the other party will be stereo; otherwise, monaural:

• The bandwidth is higher than approximately 1.8 Mbps in a 2-party videoconference call with the HDVC Unit using SIP.

• Digital Boundary Microphones and an Analogue Boundary Microphone are not being used together.

Extension Cable for the Digital Boundary Microphone	KX-VCAEX01
Dimensions (diameter x length)	7 mm (cable outer diameter) x 20 m
Weight	1.28 kg
Operating Temperature	0 °C to 40 °C
Operating Humidity	10 % to 90 % (non-condensing)