HD Visual Communications System

KX-VC2000
KX-VC1600
KX-VC1300
KX-VC1000

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HD Visual Communications System: https://panasonic.net/cns/psn/products/hdvc/
Printed in Japan/MG-HDC032EN 1909N3/PES---1

*This image shows the KX-VC2000
The new HD Visual Communications (HDVC*) System connects to multiple sites for videoconferences with minimum initial costs. You can also use a mobile device to take part in a videoconference from a location away from your company. The HDVC System realizes 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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Feature 1</th>
<th>Feature 2</th>
<th>Feature 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>KX-VC2000</td>
<td>* Remote controller included.</td>
<td>* HD Communication Camera, Omnidirectional Boundary Microphone and HDMI cable sold separately.</td>
<td>* An activation key (KX-VCS302) is required. [Refer to “Activation Key” on page 17.]</td>
</tr>
<tr>
<td>KX-VC1600</td>
<td>* Remote controller included.</td>
<td>* HD Communication Camera, Omnidirectional Boundary Microphone and HDMI cable sold separately.</td>
<td>* An activation key (KX-VCS302) is required. [Refer to “Activation Key” on page 17.]</td>
</tr>
<tr>
<td>KX-VC1300</td>
<td>* Remote controller included.</td>
<td>* HD Communication Camera, Omnidirectional Boundary Microphone and HDMI cable sold separately.</td>
<td>* An activation key (KX-VCS314) is required. [Refer to “Activation Key” on page 17.]</td>
</tr>
<tr>
<td>KX-VC1000</td>
<td>* Remote controller included.</td>
<td>* HD Communication Camera, Omnidirectional Boundary Microphone and HDMI cable sold separately.</td>
<td>* An activation key (KX-VCS402) is required. [Refer to “Activation Key” on page 17.]</td>
</tr>
</tbody>
</table>

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

The HDVC System connects a lot of 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.

**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.

- 24-site Connection
- Multi Device Applicability
- Cascade Mode Application
- NAT Traversal Service
- HD Visual Communication Mobile

**Easy to Use / Manage**

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.

- 1080/60p Recording
- Wideband Stereo Full Duplex Audio
- AV-QoS Control
- PC Contents Sharing
- Web Hybrid Mode

**Product Line-up**

- Full-HD 1080/60p
- Wideband Stereo Full Duplex Audio
- AV-QoS Control
- Multi Device Applicability
- Cascade Mode Application
- NAT Traversal Service
- HD Visual Communication Mobile

**Options**

- Triple Monitor
- Camera Control
- Web Console
- Web Hybrid Mode
- USB Recording
- Contact List Transfer

**Specifications**

- Multi Device Applicability
- Cascade Mode Application
- NAT Traversal Service
- HD Visual Communication Mobile
Connection to Multiple Sites

The HDVC System lets you hold a multi-site videoconference with people at up to 24 sites*1 without requiring the purchase of expensive MCUs (Multi-point Connection Units). When combined with Panasonic’s NAT Traversal Service or HD Visual Communication Mobile application, which enables the use of mobile devices for participating in a videoconference, you can have effective visual communication without restrictions on time or place.

*1 An activation key (KX-VCS305) must be purchased. (Refer to “Activation Key” on page 17.)

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

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 (CP 1 in the layouts shown on the right.). 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. Or you can choose from CP1, CP2, CP4, CP6, CP8, CP9, CP10, CP13, CP15, CP16, CP20, CP21, CP24, CP25, or CP28.

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

Multi Device Applicability
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 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:

* An Activation Key is required to use the software. For details, see page 17.

Screen Layout
Select layout suitable with videoconference types

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 (CP 1 in the layouts shown on the right.). 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. Or you can choose from CP1, CP2, CP4, CP6, CP8, CP9, CP10, CP13, CP15, CP16, CP20, CP21, CP24, CP25, or CP28.

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

Main display switching

The main display position can be pre-set based on conference operation method. Main display can be easily switched with number buttons on the remote controller.

Fixed main display position

Set the designated site as the main display.

Voice activation 1

Automatically allocate the loudest site to the main display.

Voice activation 2

The local site is set to the main display, and automatically allocate the loudest site next to the main display.

Fixed desired display positions

All display position can be flexibly pre-assigned.

* Profile setting is required beforehand.
Connection to Multiple Sites

Cascade Mode Application (KX-VC2000)
Increase the number of attendees without expanding the existing facilities

The newly added KX-VC2000 Cascade mode application makes it possible to expand partial videoconference groups under a particular videoconference unit without adding or expanding the existing central server or central network infrastructure. This allows a group representative to join the central videoconference meeting and share it with all attendees in the partial group. Utilizing the KX-VC2000 as a hub between central and partial groups, it is also possible to deploy a separate network in the partial group. This eliminates concentrated access to a particular network or server and achieves distributed access. In addition, with the new Cascade mode, it becomes possible to configure more than 24 sites of the HDVC videoconference system without an external server or MCU. This Cascade mode application is beneficial for relatively large organizations, such as governmental organizations or large group companies, who frequently hold group representative conferences and distribute it to all attendees. This is also useful for large-scale remote learning or training facilities, such as educational institutes or service oriented companies. This application also helps to reduce additional investments in the central server and network operation costs.

Application Example
By introducing the KX-VC2000 Cascade mode at Central Group No. 3, you can expand HDVC attendees partially in the No. 3 group without expanding the central server or central network. The KX-VC2000 automatically selects the loudest speaker of the group as a representative presenter (local No. 8 image in the figure below), and transmits his/her voice and image to the central facility, while receiving the central server composed presence image and distributing it to all of the partial group attendees.

NAT Traversal Service
Network service for connecting your company to other sites

NAT Traversal Service lets you connect to another party with a seven-digit terminal ID even when the other party’s IP address has changed by using a network with a dynamic IP address. For details, please refer to the following web site: https://panasonic.net/cns/physics/products/academic/HDVC/traversal/index.html

HD Visual Communication Mobile
Mobile application for joining remote videoconference

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.

* Use of HDVC Mobile requires a bandwidth of 256 kbps or higher (video: QVGA (Android™)/W432p HDVC Mobile communication may not be possible due to device features. Communication may not be possible, or the quality may drop due to the provider’s network packet amount. For details, please contact your provider.

** HDVC Mobile communication may not be possible due to tethering. Be sure to check the contract with your provider.
Clear Communication

**Full-HD 1080/48p**

**Conveys even facial expressions and gestures**

The HDVC System delivers high-resolution Full-HD 1080/48p images. Displayed images are as clear as Full-HD display 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.  

**High-quality Omnidirectional Boundary Microphone**

Supported by the KX-VE2000 / KX-VE1600 / KX-VC1300

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.

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

**Wideband 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.

**AV-QoS Control**

**Stress-free conference**

Packet losses for the HDVC System and HDVC Mobile are 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. Up to 256 kbps of images and sounds can be transmitted per site. Connection without disrupting the image or interrupting the sound is possible even with a low bandwidth.

**Comparison of communication quality with congested network connection**

- **Without AV-QoS**
  - Frequent image and sound disruptions

- **With AV-QoS**
  - Minimum image and sound disruptions

**AV-QoS - Panasonic original rate control technology**

**How AV-QoS works**

The rate control accurately estimates the congestion of the network and controls the amount of data to be transferred to prevent packet losses. It suppresses image disruptions and audio interruptions even when using an Internet connection whose available bandwidth fluctuates depending on network traffic.

**High followability during bandwidth variations**

The HDVC System finely controls the package volume based on constantly changing bandwidth for network bandwidth fluctuation of user traffic with the rate control, and continuously follows up in accordance with bandwidth variations. By suppressing the generation of packet losses, a stable connection environment can be achieved.

---

* The diagram is a conceptual diagram that depicts the changes of the packet in an easy to understand manner.

---

**Omnidirectional Boundary Microphone**

KX-VCA001 (Sold separately)

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

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**Packet volume**

- **Elapsed time**
  - Weighting time
  - Bandwidth
  - Transfer rate
  - Time

---

**The project concept is...**

Before that, tell me something...

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

---

**The diagram is a conceptual diagram that depicts the changes of the packet in an easy to understand manner.**

---

**The HDVC System finely controls the package volume based on constantly changing bandwidth for network bandwidth fluctuation of user traffic with the rate control, and continuously follows up in accordance with bandwidth variations. By suppressing the generation of packet losses, a stable connection environment can be achieved.**
Easy to Use / Manage

Triple Monitor (KX-VC2000 / KX-VC1400)

Accurate communication of information

The HDVC System supports H.239/BFCP 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-VC2000 / 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 / KX-VC1000 supports Dual Monitor. For KX-VC1000, an Activation Key (KX-VCS402) is necessary in order to use 2 monitors.

Intuitive operation

In addition to operating the power button of the main unit and remote controller operation, the HDVC System power can be automatically turned ON or OFF with the settings of the HDVC System. Automatic operation makes possible by turning the power OFF during the night or turning the power ON during weekdays. It is also possible to externally control the unit through the serial interface (RS-232C terminal).

Automatically control the power supply

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Web Console

Control and operation of the HDVC System from a remote location

Operations manager can control and operate the HDVC System via the Web Console without remote controller.

* The Web Console is a function intended for installers and operations managers.
* Examples of menu: System information display, Virtual remote controller, Edit contact list, Outgoing call and End call.

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.

Camera Control

Optical zoom enlarges images up to 12 times.

Applicable model: KX-VD170 (3x optical zoom in GP-VD131)

HDVC Main Unit

HDVC main unit can also be operated through remote controller.


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.

Dual Monitor/Dual Stream Operation Example

Lecturer (main site)

Attendants (sub-sites)

Document (PC data)

Instructor (Site A)

Document (PC data)

Instructor (Site A)

Students (Site B)

KX-VC2000 / KX-VC1600

KX-VC1300 / KX-VC1000

Camera Control

Intuitive operation

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

Automatically control the power supply

1. Working hours mode

This setting automatically turns the power ON at 9 AM every morning, and automatically turns the power OFF at 7 PM every night.

2. Weekday mode

This setting automatically turns the power ON at 6 AM every Monday, and automatically turns the power OFF at midnight every Saturday.


Operations manager can control and operate the HDVC System via the Web Console without remote controller.

* The Web Console is a function intended for installers and operations managers.
* Examples of menu: System information display, Virtual remote controller, Edit contact list, Outgoing call and End call.
Easy to Use / Manage

Web Hybrid Mode

Integrating Web Conference and Video Conference

By adding Web Hybrid Mode Expansion Kit* onto Visual Communications System (HDVC), audio and video / contents from Web conference group can be shared with HDVC group. This feature helps you to connect with people who are on the business trip or working at home. In addition, Web conference group can hear HDVC group audio and can join as audio conference.

* Web Hybrid Mode Expansion Kit (KX-VCZ5001) is required for the HDVC System. Refer to the Activation Key information on page 17.

- Usage Situations

  - Conferences with business travelers
  - Conferences with people working at home
  - Conferences with customers using web conference services
  - Conferences with simple participants from a shop

- Operating Examples: An operating image using a web conference PC at the head office while sharing web conference materials

USB Device Mode

Web conferences become comfortable with the peripherals of HDVC unit

The HDVC System can be used as the camera/microphone USB device*1 connected to the Web conference PC to enable high-definition web conferences.*2 Because the HDVC speaker and display can also be used, the system is ideal for web conferences with a number of participants. Select a video conference or web conference depending on the parties being connected, the number of connection points, and the locations. Since it is not only a specified web conference, the range is not limited.

- Configuration image

USB Recording

Simply recording videoconferences

Videoconferences can be recorded onto a USB memory stick connected to the HDVC System. In addition to recording a remote site, you can record images and sounds from your own site and easily start recording using the remote control. The recorded data can be played back on a personal computer, and can be easily shared among multiple sites via the HDVC System. Recording is also possible without holding a videoconference with a remote site. It can be used as visual minutes of meeting.

- Specifications

- Contact List Transfer

  Centrally manage the contact list

The HDVC System contact list of a specific site can be transferred to the HDVC System of another site through the network. This makes it possible to centrally manage the contact list of the HDVC System and improves the efficiency of operational management.

* This function is available when using an Intranet/VPN. The updating of the contact list is not an incremental update, and consists of overwriting all contacts.

- Whitelist

  Whitelist for rejecting unexpected malicious calls

For information security purposes, in addition to encryption during videoconference calls, HDVC can protect against unexpected incoming access, such as wrong number calls or especially malicious calls. By utilizing a contact list and HDVC identification as a whitelist, HDVC can be set to accept calls only from those listed in its contact list or from Panasonic videoconference units with HDVC identification.*1 In other words, any access from people who are not registered on the contact list or who are calling from non-HDVC units will be blocked.

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Product Line-up

**KX-VC2000**
- Remote controller included.
- HD Communication, Omnidirectional Boundary Microphone and HDMI cable sold separately.
- 24-Site*1 Connection
- Full-HD 1080/60p
- AV-QoS Control
- Wideband Stereo Full Duplex Audio
- Multi Device
- Triple Monitor
- Dual Camera (Sub Camera)
- PC Contents Sharing
- Dual Network
- Web Hybrid Mode
- USB Device Mode
- Multicast*2

**KX-VC1600**
- Remote controller included.
- HD Communication, Omnidirectional Boundary Microphone and HDMI cable sold separately.
- 10-Site*1 Connection
- Full-HD 1080/60p
- AV-QoS Control
- Wideband Stereo Full Duplex Audio
- Multi Device
- Triple Monitor
- Dual Camera (Sub Camera)
- PC Contents Sharing
- Dual Network
- Web Hybrid Mode
- USB Device Mode
- Multicast
- HD Communication Omnidirectional Boundary
- Remote controller included.

**KX-VC1300**
- 4-Site Connection
- Full-HD 1080/60p
- AV-QoS Control
- Wideband Stereo Full Duplex Audio
- Multi Device
- Dual Monitor
- Dual Camera (Sub Camera)
- PC Contents Sharing
- Web Hybrid Mode
- USB Device Mode
- Multicast*2

**KX-VC1000**
- Remote controller included.
- HD Communication, Omnidirectional Boundary Microphone and HDMI cable sold separately.
- Point to Point*1 Connection
- Full-HD 1080/60p
- AV-QoS Control
- Wideband Stereo Full Duplex Audio
- Multi Device
- Dual Monitor
- Dual Camera (Sub Camera)
- PC Contents Sharing
- Web Hybrid Mode
- USB Device Mode
- Multicast*2

Function Comparison List

<table>
<thead>
<tr>
<th>KX-VC1300</th>
<th>KX-VC1600</th>
<th>KX-VC2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Conference Sites</td>
<td>4*2</td>
<td>10*3</td>
</tr>
<tr>
<td>Image Resolution</td>
<td>Full-HD 1080/60p</td>
<td>Full-HD 1080/60p</td>
</tr>
<tr>
<td>Monitor</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Other-brand Device Compatibility*5</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>MCU Interoperability*5</td>
<td>Yes (1-4 unit)</td>
<td>Yes (1-4 unit)</td>
</tr>
<tr>
<td>PC Contents Sharing</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Online Hybrid Mode*3</td>
<td>Yes (1-4 unit)</td>
<td>Yes (1-4 unit)</td>
</tr>
<tr>
<td>Online Hybrid Mode*5</td>
<td>Yes (1-4 unit)</td>
<td>Yes (1-4 unit)</td>
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<tr>
<td>Interoperability*3</td>
<td>Yes (1-4 unit)</td>
<td>Yes (1-4 unit)</td>
</tr>
<tr>
<td>Interoperability*5</td>
<td>Yes (1-4 unit)</td>
<td>Yes (1-4 unit)</td>
</tr>
</tbody>
</table>

*1 An activation key (KX-VCS302) is required. (Refer to “Activation Key” on page 17.)
*2 An activation key (KX-VCS314) is required. (Refer to “Activation Key” on page 17.)
*3 An activation key (KX-VCS305) is required. (Refer to “Activation Key” on page 17.)
*4 Please ask your nearest dealer about other-brand devices that can be connected.
*5 Please ask your nearest dealer about MCUs that can be connected.
**HD Communication Camera**

KX-VD170
- HD (HDMI cable sold separately)
- Full-HD microphone
- Activation Key

GP-V0131
- HD (HDMI cable sold separately)
- 3G optical/burnout digital zoom
- Pan/tilt function
- Presets positions: 12
- Operation through remote controller

Remote controller
- Operation through presets positions: 12
- 12x optical zoom/10x digital zoom (HDMI cable sold separately)

KX-VD131
- HD (HDMI cable sold separately)
- Full-HD microphone
- Activation Key

KX-VD170
- HD (HDMI cable sold separately)
- Full-HD microphone
- Activation Key

**Omnidirectional Boundary Microphone**

KX-VA001
- Includes: 4.5 m included
- A high-grade microphone with a direction recognition function that detects the direction of the speaker’s voice
- Pan/tilt function
- Presets positions: 12
- Operation through remote controller

KX-VA002
- Includes: 7.1 m included
- A compact, economical and high-grade stereo microphone
- Pan/tilt function
- Presets positions: 12
- Operation through remote controller

**Activation Key**

For HD Visual Communications Unit

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Name</th>
<th>Target Model</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>KX-VC300</td>
<td>Multi-talk</td>
<td>KX-VCS300 / KX-VCS300</td>
<td>Multi-talk</td>
</tr>
<tr>
<td>KX-VC302</td>
<td>4 Point in MU</td>
<td>KX-VCS300 / KX-VCS300</td>
<td>4 Point in MU</td>
</tr>
<tr>
<td>KX-VC304</td>
<td>8 Point in MU</td>
<td>KX-VCS300 / KX-VCS300</td>
<td>8 Point in MU</td>
</tr>
<tr>
<td>KX-VC306</td>
<td>16 Point in MU</td>
<td>KX-VCS300 / KX-VCS300</td>
<td>16 Point in MU</td>
</tr>
</tbody>
</table>

For NAT Traversal Service

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Name</th>
<th>Target Model</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>KX-VC301</td>
<td>For the HD Visual Communications System</td>
<td>KX-VC300 / KX-VC300</td>
<td>3 Years</td>
</tr>
<tr>
<td>KX-VC302</td>
<td>For a Wired Terminal</td>
<td>Mobile Activation Key - 1 Year for Windows</td>
<td>3 Years for Windows</td>
</tr>
<tr>
<td>KX-VC303</td>
<td>For an Android™ and iOS Terminal</td>
<td>Mobile Activation Key - 1 Year</td>
<td>3 Years for Android™ and iOS Terminal</td>
</tr>
</tbody>
</table>

For appropriate sound quality

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

For details, please contact your dealer.
### Specifications

**Main Unit**

<table>
<thead>
<tr>
<th>Model</th>
<th>KX-VC2000</th>
<th>KX-VC1600</th>
<th>KX-VC1300</th>
<th>KX-VC1000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frame Rate</td>
<td>60 fps</td>
<td>60 fps</td>
<td>60 fps</td>
<td>60 fps</td>
</tr>
<tr>
<td>Resolution</td>
<td>1920×1080p</td>
<td>1920×1080i</td>
<td>1920×1080p</td>
<td>1920×1080p</td>
</tr>
<tr>
<td>Codec</td>
<td>H.264</td>
<td>H.264</td>
<td>H.264</td>
<td>H.264</td>
</tr>
<tr>
<td>Encryption</td>
<td>SRTP (AES 128 bit), H.235 (AES 128 bit)</td>
<td>SRTP (AES 128 bit)</td>
<td>SRTP (AES 128 bit)</td>
<td>SRTP (AES 128 bit)</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Format</td>
<td>PCM/16 bits/32 kbps</td>
<td>PCM/16 bits/32 kbps</td>
<td>PCM/16 bits/32 kbps</td>
<td>PCM/16 bits/32 kbps</td>
</tr>
<tr>
<td>Encoding</td>
<td>G.711 µ-law, G.711 A-law</td>
<td>G.711 µ-law, G.711 A-law</td>
<td>G.711 µ-law, G.711 A-law</td>
<td>G.711 µ-law, G.711 A-law</td>
</tr>
<tr>
<td><strong>Network</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mode</td>
<td>WEB Hybrid (50 Mbps), IP mode / NAT Traversal mode, IP mode / NAT Traversal mode</td>
<td>WEB Hybrid (50 Mbps), IP mode / NAT Traversal mode, IP mode / NAT Traversal mode</td>
<td>WEB Hybrid (50 Mbps), IP mode / NAT Traversal mode, IP mode / NAT Traversal mode</td>
<td>WEB Hybrid (50 Mbps), IP mode / NAT Traversal mode, IP mode / NAT Traversal mode</td>
</tr>
<tr>
<td><strong>I/O</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td>HDMI x 2, HDMI x 2, HDMI x 2</td>
<td>HDMI x 2, HDMI x 2, HDMI x 2</td>
<td>HDMI x 2, HDMI x 2, HDMI x 2</td>
<td>HDMI x 2, HDMI x 2, HDMI x 2</td>
</tr>
<tr>
<td>Audio</td>
<td>6 (Expandable up to 10)</td>
<td>6 (Expandable up to 10)</td>
<td>6 (Expandable up to 10)</td>
<td>6 (Expandable up to 10)</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>10 % to 90 % (non-condensing)</td>
<td>10 % to 90 % (non-condensing)</td>
<td>10 % to 90 % (non-condensing)</td>
<td>10 % to 90 % (non-condensing)</td>
</tr>
<tr>
<td>Power Input</td>
<td>AC 24V, 2.5 A</td>
<td>AC 24V, 2.5 A</td>
<td>AC 24V, 2.5 A</td>
<td>AC 24V, 2.5 A</td>
</tr>
</tbody>
</table>

**HD Communication Camera**

<table>
<thead>
<tr>
<th>Model</th>
<th>KX-VCA001</th>
<th>KX-VCA002</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frame Rate</td>
<td>Max. 60 frames/second</td>
<td>Max. 60 frames/second</td>
</tr>
<tr>
<td>Codec</td>
<td>H.264</td>
<td>H.264</td>
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<tr>
<td><strong>Audio</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Format</td>
<td>PCM/16 bits/32 kbps</td>
<td>PCM/16 bits/32 kbps</td>
</tr>
<tr>
<td><strong>Network</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mode</td>
<td>WEB, IP mode / NAT Traversal mode</td>
<td>WEB, IP mode / NAT Traversal mode</td>
</tr>
<tr>
<td><strong>I/O</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td>HDMI x 2</td>
<td>HDMI x 2</td>
</tr>
<tr>
<td>Audio</td>
<td>6 (Expandable up to 10)</td>
<td>6 (Expandable up to 10)</td>
</tr>
</tbody>
</table>

**Omnidirectional Boundary Microphone**

<table>
<thead>
<tr>
<th>Model</th>
<th>KX-BOM2000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Microphone</strong></td>
<td></td>
</tr>
<tr>
<td>Pickup Method</td>
<td>Stereo / Monaural *1</td>
</tr>
<tr>
<td>Resolution</td>
<td>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 800p, 1920 x 1080i, 1920 x 1080p</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td></td>
</tr>
<tr>
<td>Encoding</td>
<td>SRTP (AES 128 bit), H.235 (AES 128 bit)</td>
</tr>
</tbody>
</table>

**USB Device Mode**

- Requires a USB cable to the PC, without a dedicated interface.

**Web Hybrid Mode**

- Requires a USB cable to the PC, without a dedicated interface.

---

*1 Usable by simply connecting a USB cable to the PC.

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

**3 For 3-conductor stereo mini-plugs only.

---

**HD Communication Camera**

- KX-VCA001 and KX-VCA002 are not being used together.

**Omnidirectional Boundary Microphone**

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

**USB Device Mode**

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