

# SONY®

HD Visual Communication System

# PCS-HG90



## HD

Connect Your Vision

# IPELA™

# IPELA

PCS-HG90

Stunning video and audio brought to you by the "IPELA" series of visual communication products that encompass the three-pronged concept of "Reality," "Intelligence," and "Usability." "IPELA" is the identity symbolizing the Sony vision for the workplace of the future, connecting people, places, and information with reality that has never before been achieved. "IPELA" lets you share ideas and dreams as if you are collocated when your counterpart is half-way around the world, experiencing images as if you are actually there.

## Reality

- Stunning HD Video (H.264 1280 x 720 60P/50P, H.264, Max. 8 Mb/s Bandwidth)
- HD 3CCD PTZ Camera
- Superb Sound (MPEG-4 AAC Stereo or Mono)

## Intelligence

- Enhanced Intelligent QoS Functions
- AES (H.235) Encryption

## Usability

- Professional A/V Interfaces (HD-SDI, XLR)
- 4-site Internal MCU

Real audiovisual communication over networks – this is business communication of the future, this is business communication brought to you today, this is "IPELA."

## Sony brings in a New Generation of Visual Communication with the High-Definition PCS-HG90 – Experience the Future in Real Communication

*As the quality of IP networks advances and visual communication technology evolves, we can communicate more effectively and efficiently regardless of location or the distance separating us. But for top-end professional applications that demand the highest sound and image quality as well as true to life color capture – such as live interview broadcasts, product design conferences, and distance learning including medical teaching – standard videoconferencing systems will have limitations. These dynamic applications require higher, more robust level of audio and video quality to satisfy the critical demands of a broad range of professional end users. The IPELA High Definition Visual Communications platform provides dynamic solutions that standard definition videoconferencing simply cannot.*

*To meet these professional needs, Sony introduces an exceptional high-definition (HD) visual communication system, the PCS-HG90. Sony is a leader in the audio/visual (AV) industry and has produced a number of high-quality HD systems. By inheriting this proven HD technology, the PCS-HG90 is sure to become a major player in the HD visual communications market. For the first time in this industry, a high-definition video format of 1280 x 720 at 60P/50P and a maximum video transfer rate of 8 Mb/s over an IP network has been achieved. Using the H.264 video codec along with a high-definition format with a high frame rate, the PCS-HG90 boasts realistic and lifelike images even on large-screen displays. In addition to high-quality images, the PCS-HG90 features clear and natural-sounding audio, with its wide frequency range of up to 22 kHz using MPEG-4 AAC (Advance Audio Coding). What's more, when using AUX audio inputs, the unit supports a wider frequency range of up to 44 kHz, to provide superb-quality audio from a number of different sound sources. Also, what makes the PCS-HG90 unique is that it can accept analog or digital video signals, from SD to HD, as well as PC signals. And because the PCS-HG90 accepts video signals via its BNC connectors and stereo audio via its XLR connectors, the system is ideal for configuring with professional AV equipment. An optional PCSA-CHG90 camera unit can be used with the system to provide high-quality HD video and a Pan/Tilt/Zoom (PTZ) capability. Additional features of the PCS-HG90 include a four-site multi-point visual communication capability, Memory Stick™ media support, and ITU-T H.235 encryption.*

*For customers demanding effective communication with lifelike audio and video, the PCS-HG90 provides a reality that has never before been achieved by a visual communication system.*

# FEATURES

## Stunning High-Definition (HD) Images and Lifelike Stereo Sound

The PCS-HG90 adopts the H.264 video codec, which enables efficient transmission of high-quality images at up to 60 frames per second in a high-definition resolution of 1280 x 720 pixels. Also, the PCS-HG90 produces clear and natural stereo sound, using the MPEG-4 AAC compression format. When setting the sampling frequency to 96 kHz, an astonishing frequency range up to 44 kHz is available through the AUX input. And because the unit has a built-in stereo echo canceller when using the mic input, communication sounds far more natural by eliminating the annoying echo that you often hear with other systems.



Standard-Definition Videoconferencing System  
[Simulated Image]



High-Definition Visual Communication System – PCS-HG90  
[Simulated Image]

## High Throughput with Stable Transmission

### Maximum Bandwidth of up to 8 Mb/s over IP

### Enhanced Intelligent QoS (Quality of Service) Functions

To handle the transmission of large amounts of HD video data at speeds of up to 8 Mb/s, while maintaining high-quality and stable communication over an IP network, the system incorporates the following advanced QoS functions:

- Adaptive FEC (Forward Error Correction)
- Real-time ARQ™ (Automatic Repeat reQuest)
- ARC (Adaptive Rate Control)

These functions work “harmoniously” for fast and consistent data throughput during the transmission of video signals by adapting to any changes in the network condition and correcting any packet loss. For more information on the intelligent QoS mechanism, refer to the “Technical Note” insert.

## Optical HD Camera (PCSA-CHG90)

### Superb Picture Quality

The PCSA-CHG90 is a camera unit designed especially for the PCS-HG90. It incorporates three 1/3-inch type HD sensors with a total of 1,020,000 effective pixels each, resulting in outstanding picture quality with high resolution and high contrast. This camera is suitable when your requirement is for superb color reproduction and realistic widescreen images with a 16:9 aspect ratio using the 1080i<sup>\*1</sup> high-definition format, which is comparable to HDTV broadcasts.

<sup>\*1</sup> 1080i stands for 1080 interlaced scanning lines, a high-definition standard. Actual communication between endpoints is performed using the 720P format (i.e. 720 progressive scanning lines).

### High-performance Pan/Tilt/Zoom Mechanism

The PCSA-CHG90 can cover a wide shooting range with its highly accurate Pan/Tilt mechanism. It has a very wide pan range of 340 degrees and a tilt range of 115 degrees. What’s more, the PCSA-CHG90 incorporates a 12x optical auto-focus zoom lens, achieving a zoom capability of up to 48x when used in combination with its 4x digital zoom.



Expanded Applications with the PCS-HG90 System



Versatile Video Inputs/Outputs

## Versatile Video Inputs/Outputs

### Professional A/V Interfaces

The PCS-HG90 comes equipped with HD-SDI terminals for video input/output, enabling transmission of digital signals through the entire chain of events from image acquisition to display. The unit is also equipped with XLR-type audio input/output terminals. Because of these versatile interfaces, system integrators will appreciate the flexibility afforded to them when configuring a system. This flexibility allows integrators to meet customer requirements for almost any video application.

The following signals are supported by the PCS-HG90:

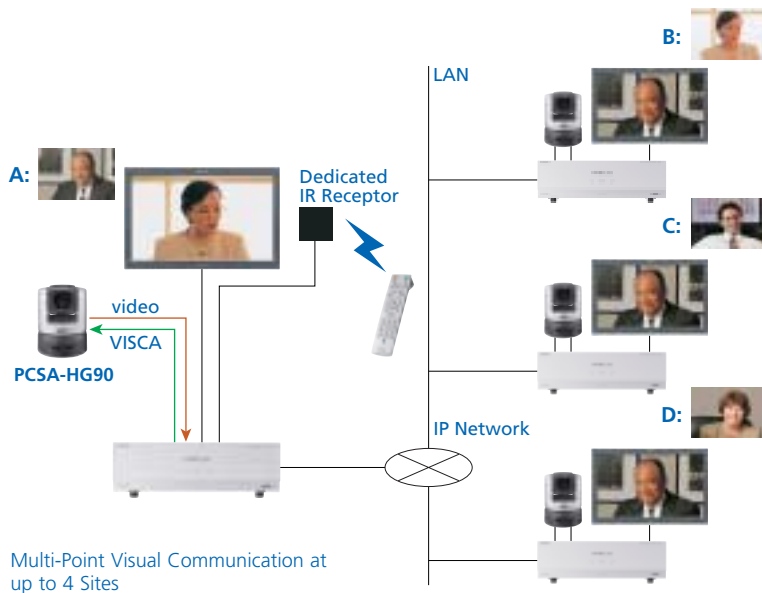
#### Input Video/PC Signals

Video: 1080 x 50/60i, 720 x 60p,  
480 x 60i, 576 x 50i

PC: VGA (640 x 480), SVGA (800 x 600),  
XGA (1024 x 768), WXGA (1280 x 768),  
SXGA (1280 x 1024)

#### Output Video Signals

1080 x 50/60i, 720 x 60p



Multi-Point Visual Communication at up to 4 Sites

## Multi-Point Visual Communication at up to 4 Sites<sup>\*2</sup>

The system offers simultaneous communication with up to 3 remote sites (4 sites in total).

<sup>\*2</sup> A multi-site split screen cannot be displayed.

## Intuitive GUI and User-Friendly Remote Commander Unit

The PCS-HG90 has a number of features that make it easy to operate, such as the ability to quickly and intuitively dial up to three contacts on the launcher menu using the supplied Remote Commander™ unit and "Operation Guidance" at the bottom of the screen to provide assistance. Up to 500 contacts can be stored in the system's common phone book for quick and easy dialing. In addition, the PCS-HG90 supports a call history log, which stores the last 32 incoming and outgoing calls so that the user can readily select and dial a recent contact.



Launcher Menu



## Memory Stick Media Support\*3

Private phone books can be created and stored on Memory Stick media. By simply inserting the Memory Stick media into the PCS-HG90, the unit automatically recognizes and activates the private phone book, thereby eliminating the need to re-enter contact information to place a call. Memory Stick media has a number of other uses, such as for saving setting parameters and updating software.

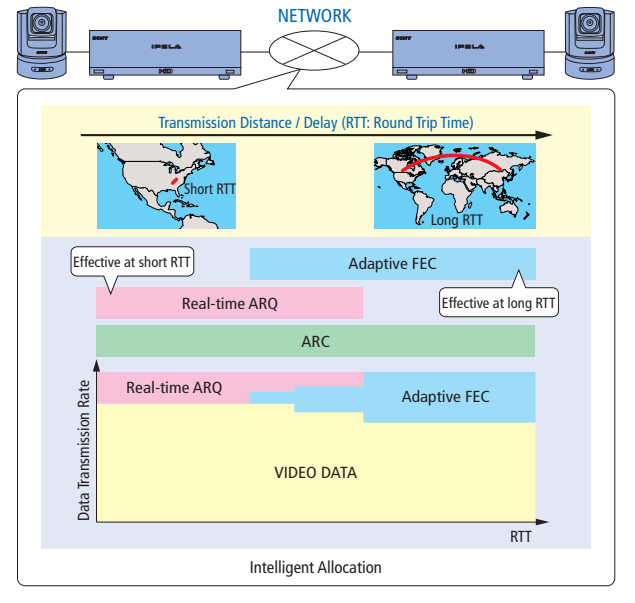
\*3 In addition to Memory Stick, Memory Stick PRO™ and Memory Stick Duo™/PRO Duo™ media with an adaptor can also be used.

## Other Features

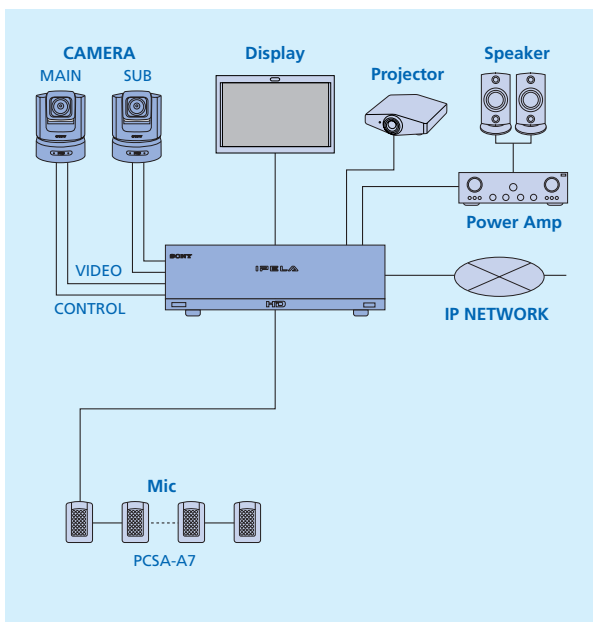
- **Flexible Display Patterns (Full-screen, Picture-in-Picture, and Picture-and-Picture including Side-by-Side split screen)**
- **Supports Optional Echo Cancelling Mics (PCSA-A7P4)**
- **FECC (Far End Camera Control)**
- **Full Setup and Control of PCS-HG90 via Web Browser**
- **External Control Using RS-232C/Telnet**
- **H.235 AES (Advanced Encryption Standard) – 128-bit Encryption**

## Technical Note – Intelligent QoS Functions

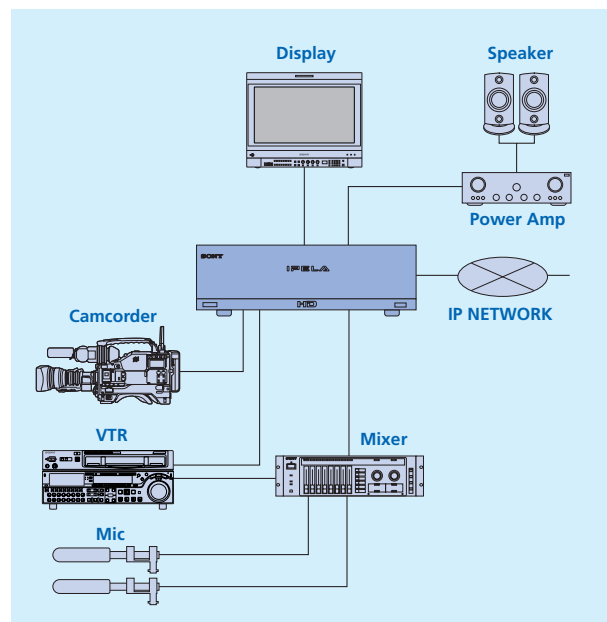
Sony has implemented a number of QoS functions in all of its currently available visual communication systems. However, conventional QoS methods are inadequate when handling large amounts of data associated with high-definition video. Therefore, Sony has designed and implemented intelligent QoS functions in its high-definition PCS-HG90. Two major improvements have been made on the previous methods. First, the system intelligently allocates the amount of ARQ, FEC, and video data based on the bandwidth available, which is determined by the ARC function. Second, FEC is performed with larger FEC blocks and the number of parity packets are adjusted as required. This combination is both efficient and effective for transmitting large amounts of data over IP networks to help maintain high picture quality.



## SAMPLE SYSTEM CONFIGURATIONS



Corporate/Education Applications



Broadcast/Professional Applications

# SPECIFICATIONS

PCS-HG90 (TERMINAL)	
<b>Video</b>	
Compression standard	ITU-T H.264
Compression processing	1280 x 720 / 60p, 30p, 50p, 25p
Bit rate	512 kb/s to 8 Mb/s (8192kb/s) in H.323
Input signals	1080 x 60i, 1080 x 50i, 720 x 60p, 480 x 60i, 576 x 50i, VGA (640 x 480), SVGA (800 x 600), XGA (1024 x 768), WXGA (1280 x 768), SXGA (1280 x 1024)
Output signals	1080 x 60i, 1080 x 50i, 720 x 60p
<b>Audio</b>	
Bandwidth and coding	Selectable from setup menu : MPEG4 AAC Stereo: 22 kHz (Aux In / Mic In) at 192 kb/s (Fs = 48 kHz), (default) MPEG4 AAC Mono : 22 kHz (Aux In / Mic In) at 96 kb/s (Fs = 48 kHz) MPEG4 AAC Stereo: 44 kHz (Aux In) / 22 kHz (Mic In) at 192 kb/s (Fs = 96 kHz) MPEG4 AAC Mono : 44 kHz (Aux In) / 22 kHz (Mic In) at 96 kb/s (Fs = 96 kHz) G.711: 3.4 kHz at 56 kb/s, 64 kb/s G.722: 7.0 kHz at 48 kb/s, 56kb/s, 64kb/s G.728: 3.4 kHz at 16 kb/s
Echo Cancellation	Stereo Echo-cancelling supported for audio frequency up to 22 kHz Noise Suppressor included Automatic Gain Control included
<b>Screen Layout</b>	
	Full screen, Picture-in-Picture, Picture-and-Picture including Side-by-Side split screen
<b>ITU-T Standards (excludes audio/video standards)</b>	
	H.323 (HD video only), H.225, H.281 FECC, H.245, H.235
<b>Network Protocol</b>	
	TELNET (Server), HTTP (Server), FTP (Server), SNMP (Agent) DNS (Client), DHCP (Client), RTP/RTCP, TCP/UDP, NTP
<b>Control Port</b>	
	LAN (Ethernet), RS-232C
<b>Multipoint Capability</b>	
Internal MCU	Up to 4 sites of video and audio Full Screen Display only (Broadcast or Voice Activated Mode)
<b>Lip Synchronization</b>	
	Yes
<b>Security</b>	
	H.235 AES Encryption
<b>Network Features</b>	
QoS (Quality of Service)	Adaptive FEC (Forward Error Correction), Real-time ARQ (Auto Repeat reQuest), ARC (Adaptive Rate Control)
Others Network Features	SNMP, NAT, UDP Shaping, TCP/UDP Port Setting Support, Auto Gatekeeper Discovery
<b>Camera Control</b>	
Preset Position	6 points via GUI, Remote Commander, Telnet and Web
<b>Interface</b>	
Video Input	HD-SDI x2 (HD Camera/HD VTR etc.) Y/Pb/Pr x1 (HD Camera/HD VTR etc.) S-Video x1 (SD Camera/SD VTR etc.) RGB (D-sub 15) x1 (PC: VGA, SVGA, XGA, WXGA, SXGA)
Video Output	HD-SDI x1 (Far Video) Y/Pb/Pr x1 (Far Video) Y/Pb/Pr x1 (Near Video)
Audio Input	XLR x2 (L/R), (Line Level to Audio Mixer) XLR x2 (L/R), Aux1 (Line Level to Audio Mixer) RCA x2 (L/R), Aux2 (Line Level to VCR, DVD, etc) Plug-in-power x2 (L/R), PCS-A1, PCS-A3 (Mic Level) PCS-A7 dedicated x2
Audio Output	XLR x2 (L/R), (Far, Line Level) XLR x2 (L/R), Mix (Far+Near for Rec, Line Level) RCA x2 (L/R), Mix (Far, Line Level)
Network	100Base-TX / 10Base-T x1
Control	Wired SIRCS In x1 for Remote Commander Unit, RS-232C x1 D-Sub 9-pin, VISCA RS-232C x2 (Camera Control)
Memory Stick	Memory Stick Slot x1
<b>General</b>	
Operating temperature	5 to 35 °C (41 to 95 °F)
Operating humidity	20 to 80% (non condensing)
Storage temperature	-20 to 60 °C (-4 to 140 °F)
Storage humidity	20 to 80% (non condensing)
Power requirements	AC 100 to 240 V, 50/60 Hz
Current	1.8 A
Dimensions (W x H x D)	440 x 150 x 450 mm (17 3/8 x 6 x 17 3/4 inches), excl. projections (including feet)
Mass	Approx. 13 kg (28 lb 11 oz)
<b>Supplied Accessories</b>	
	PCS-RG1 (Remote Commander Unit) x1, Remote Control Receiver x1, Power Cord x1, Manganese Battery for Remote Commander Unit x2, Operation Instructions CD-ROM x1, Operation Guide x1, Quick Connection Guide/Remote Control Guide x1, Connection Sheet x1, Worldwide Warranty Booklet x1

PCSA-CHG90 (OPTIONAL CAMERA)	
Image device	1/3-type IT CCD x3
Total picture elements	Approx. 1.12 Megapixels
Effective picture elements	Approx. 1.02 Megapixels
Focal length	4.5 to 54 mm (F1.6 to F2.8)
Focus	Auto / Manual
Brightness adjustment	Auto / Manual
Horizontal image angle	5.5° (tele) to 60.3° (wide)
Vertical image angle	3.1° (tele) to 36.2° (wide)
Zoom ratio	x12 optical zoom (x48 with digital zoom)
Pan/Tilt angle	-170° to +170° (Pan), -25° to +90° (Tilt)
S/N	50 dB
Video Out	HD-SDI x2 (BNC connector) Y/Pb/Pr x1 (15-pin D-sub connector) for service use
Control In	VISCA RS-232C x1 (8-pin Mini DIN )
Control In/Out	VISCA RS-422 x1 (9-pin connector)
Operating temperature	5 to 40 °C (41 to 104 °F)
Operating humidity	20% to 80% (non condensing)
Storage temperature	-20 to 60 °C (-4 to 140 °F)
Storage humidity	20% to 95% (non condensing)
Power requirements	DC 12V
Power consumption	Max. 24 W
Dimensions	208 x 267 mm (8 1/4 x 10 5/8 inches), excl. projections
Mass	Approx. 4.4 kg (9 lb 11 oz)
Others	Auto White Balance, Electronic-Flip (ON/OFF)
Supplied accessories	AC Power Adaptor (MPA-AC1) x1, AC Power Code x1, Ceiling Bracket (A) x1, Ceiling Bracket (B) x1, Wire Rope x1, Screws (+M3x8) x7, Screws (+M4x8) x1, RS-422 Connector Plug x1, VISCA Cable (3.0m) x1, BNC Cable (3.0m) x1, Operating Instructions x1, Worldwide Warranty Booklet x1

## OPTIONAL ACCESSORIES



**PCSA-CHG90**  
Communication HD Video Camera



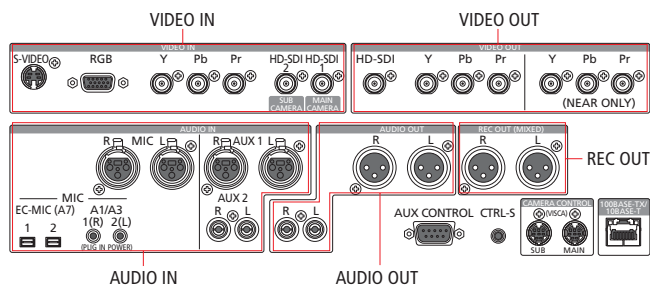
**PCSA-A7P4**  
Echo-cancelling Microphone  
(4 mics per package)



**PCS-A1**  
Omni-directional Microphone



**PCSA-A3**  
Directional Microphone



Rear Panel

## Distributed by

© 2006 Sony Corporation. All rights reserved.  
 Reproduction in whole or in part without written permission is prohibited.  
 Features and specifications are subject to change without notice.  
 All non-metric weights and measurements are approximate.  
 Sony, IPELA, Remote Commander, Memory Stick, Memory Stick PRO,  
 Memory Stick Duo, and the Memory Stick logo are trademarks of Sony Corporation.  
 Some images in this brochure are simulated.  
 All other trademarks are the property of their respective owners.