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.

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 high-definition format, which is comparable to HDTV broadcasts.

*1 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.

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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.

High Definition Visual Communication System – PCS-HG90

Expanded Applications with the PCS-HG90 System

Standard-Definition Videoconferencing System

High-Definition Visual Communication System – PCS-HG90

Medical

Corporate

Broadcast

Production

Education
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

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

**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.
**Memory Stick Media Support**

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 (PCS-A7P4)
- FECC (Far End Camera Control)
- Full Setup and Control of PCS-HG90 via Web Browser
- External Control Using RS-232C/Telnet

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**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.

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**SAMPLE SYSTEM CONFIGURATIONS**

**Corporate/Education Applications**

**Broadcast/Professional Applications**
### Specifications

#### PCC-CHG90 (Terminal)
- **Input Compression:** H.264
- **Bit-rate:** 1 Mbit/s to 20 Mbit/s
- **Input Signals:** VISCA RS-232C (Camera Control)
- **Video Input:** HD-SDI x1 (Far Video)
- **Audio Input:** XLR x2 (L/R), Mix (Line Level to Audio Mixer)
- **Audio Output:** XLR x2 (L/R), Mix (Line Level to Audio Mixer)
- **Network Features:** SNMP, NAT, UDP Shaping, TCP/UDP Port Setting Support, QoS (Quality of Service) Adaptive FEC (Forward Error Correction), Internal MCU Up to 4 sites of video and audio
- **Others:** Echo Cancellation Stereo Echo-canceling supported for audio frequency up to 22 kHz

#### PCC-A7P4 (Optional Camera)
- **Audio Output:** XLR x2 (L/R), Mix (Line Level to Audio Mixer)
- **Video Input:** HD-SDI x2 (HD Camera/HD VTR etc.)
- **Video Output:** HD-SDI x2 (BNC connector)
- **Audio Input:** XLR x2 (L/R), Mix (Line Level to Audio Mixer)
- **Control In:** VISCA RS-422 x1 (9-pin connector)
- **Control Out:** VISCA RS-422 x1 (9-pin connector)
- **Communication:** HD Video Camera

#### Optional Accessories

**PCSA-A7P4**
- **Echo-canceling Microphone**

**PCSA-G90**
- **Communication HD Video Camera**

**PCSA-A1**
- **Omni-directional Microphone**

**PCSA-A3**
- **Directional Microphone**

### General Features
- **Auto Gatekeeper Discovery**
- **Yes**
- **Real-time ARQ (Auto Repeat reQuest), ARC (Adaptive Rate Control)**
- **Full Screen Display only (Broadcast or Voice Activated Mode)**
- **Auto White Balance, Electronic-Flip (ON/OFF)**
- **Noise Suppressor included**
- **G.728: 3.4 kHz at 16 kb/s**
- **G.711: 3.4 kHz at 56 kb/s, 64 kb/s**
- **MPEG4 AAC Mono : 44 kHz (Aux In) / 22 kHz (Mic In) at 96 kb/s (Fs = 96 kHz)**
- **MPEG4 AAC Stereo: 44 kHz (Aux In) / 22 kHz (Mic In) at 192 kb/s (Fs = 96 kHz)**
- **MPEG4 AAC Mono : 22 kHz (Aux In / Mic In) at 96 kb/s (Fs = 48 kHz)**
- **Bit rate:** 512 kb/s to 8 Mb/s (8192kb/s) in H.323
- **Compression standard:** ITU-T H.264
- **Compression processing:** 1280 x 720 / 60p, 30p, 50p, 25p

### Image Device
- **Total picture elements:** Approx. 1.12 Megapixels
- **Image device:** 1/3-type IT CCD x3
- **Pan/Tilt angle:** -170° to +170° (Pan), -25° to +90° (Tilt)
- **Brightness adjustment:** Auto / Manual
- **Focus:** Auto / Manual
- **Focal length:** 4.5 to 54 mm (F1.6 to F2.8)
- **Total picture elements:** Approx. 1.12 Megapixels
- **Image device:** 1/3-type IT CCD x3

### WorldWide Warranty
- **Worldwide Warranty Booklet x1**
- **Quick Connection Guide/Remote Control Guide x1, Connection Sheet x1**
- **Others:** Auto White Balance, Electronic-Flip (ON/OFF)
- **Mass Approx. 4.4 kg (9 lb 11 oz)**
- **(Diameter x H) (8 1/4 x 10 5/8 inches), excl. projections**
- **Dimensions 208 x 267 mm**
- **Power consumption:** Max. 24 W
- **Storage humidity:** 20% to 95% (non condensing)
- **Storage temperature:** -20 to 60 °C (-4 to 140 °F)
- **Operating humidity:** 20% to 80% (non condensing)
- **Operating temperature:** 5 to 40 °C (41 to 104 °F)
- **Control In VISCA RS-232C x1 (8-pin Mini DIN)
- **Control Out VISCA RS-232C x1 (9-pin connector)
- **Video Out HD-SDI x2 (BNC connector)
- **S/N:** 50 dB
- **Horizontal image angle:** 5.5° (tele) to 60.3° (wide)
- **Vertical image angle:** 3.1° (tele) to 36.2° (wide)
- **Brightness adjustment:** Auto / Manual
- **Focus:** Auto / Manual
- **Focal length:** 4.5 to 54 mm (F1.6 to F2.8)
- **Total picture elements:** Approx. 1.12 Megapixels
- **Image device:** 1/3-type IT CCD x3

### Optional Accessories

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- **Echo-canceling Microphone**

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- **Directional Microphone**

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