SONY

PCS-XG100 / PCS-XG100S
PCS-XG77 / PCS-XG77S
HD Visual Communication Systems

IPELA   Exmor   View-DR

Upgrade Your Daily Business Communication with Sony's 1080/60p Full HD Visual Communication Packages

With the rapid development and spread of IT and network technologies, visual communication has become an indispensable daily business tool both internally and externally for every organization.

Sony offers two full HD visual communication system packages: the PCS-XG100 and PCS-XG77. The PCS-XG100 package optimally combines a PCS-XG100S video codec unit and SRG-120DH Full HD PTZ (Pan, Tilt, Zoom) camera system. The PCS-XG77 package combines a PCS-XG77S video codec unit and the same SRG-120DH PTZ camera system.

The PCS-XG100 and PCS-XG77 deliver industry-leading stunning 1080/60p*1 full HD images. In addition, by adoption of View-DR image enhancing technology in the SRG-120DH PTZ camera system, these packages are enabled to provide clear images. Furthermore, both support H.239 1080/30p dual streams*1 and high-quality MPEG-4 AAC stereo audio, too.

With this high-quality video and audio performance, the PCS-XG100 and PCS-XG77 have wider application than just the usual business meetings; they are also ideal for design simulation meetings, scientific research communications, and much more.

IPELA

The IPELA Series of visual communication products encompass a three-pronged concept of "Reality", "Intelligence", and "Usability" to bring you all the benefits of advanced audiovisual communication.

Reality

- 1080/60p full HD images*1
- 1080/30p dual streams including simultaneous 1080/30p video + presentation data transmission (H.239)*1
- Superb MPEG-4 AAC stereo audio quality with an echo canceller function

Intelligence

- SRG-120DH PTZ camera with View-DR image enhancing technology
- Multi-point connection – Embedded MCU for up to 16 sites*2*3
- Maximum 9-screen continuous-presence mode*4
- Intelligent QoS™ functions
- AES (Advanced Encryption Standard) for high-level security

Usability

- Video annotation function*5
- Multiple display layout – PandPandP (Far/Near/PC)
- Triple monitor mode*6
- One-touch dialing with RF Remote Commander™ unit
- Dual network interfaces*7
- HD recording via USB port

*1 The PCS-XG77 requires an optional PCSA-RXG77 HD upgrade software license.
*2 The PCS-XG100 requires an optional PCSA-MCG109 or PCSA-MCG106 MCU software.
*3 The PCS-XG77 requires an optional PCSA-MCG106 MCU software.
*4 The PCS-XG77 supports maximum 6-screen continuous-presence mode.
*5 Requires a commercially available third-party pen tablet product.
*6 The PCS-XG77 supports dual monitors.
*7 The PCS-XG77 does not support this function.

Packages	PCS-XG100	PCS-XG77
PTZ Camera	SRG-120DH	
Codec unit	PCS-XG100S	PCS-XG77S
Microphone	PCS-A1 (2)	PCS-A1 (1)
Other items than manuals and guides	HDMI cable (3 m) (1), RF Remote commander (1), Camera cable (3 m) (1)	

Note: In this brochure, The PCS-XG100 refers to both the PCS-XG100 and PCS-XG100S, and the PCS-XG77 refers to both the PCS-XG77 and PCS-XG77S unless otherwise specified.

Reality

Stunning 1080/60p HD Video Images*

The PCS-XG100 and PCS-XG77 adopt the H.264 high-efficiency video codec to bring you smooth and natural HD 1920 x 1080/60p broadcast-quality images. Stunning HD video enhances your videoconferencing with lifelike images, and gives you a wider range of ways to use visual communication.

* The PCS-XG77 requires an optional PCSA-RXG77 HD upgrade software license.

1080/30p

1080/60p

Simulated images

## Superb Audio Quality with Stereo Echo Canceller Function

Both of these visual communication packages produce clear and natural stereo sound, using the MPEG-4 AAC compression format. A built-in stereo echo canceller function eliminates annoying echo, and makes communication sound far more natural. These systems support up to six microphone connections.

Full HD 1080/30p Dual Streams*

With support for the ITU-T H.239 standard, the PCS-XG100 and PCS-XG77 can send full HD 1080/30p dual streams, or both video and presentation data displayed on your PC, to videoconferencing counterparts for more effective communication.
Presentation data can be transferred at frame rates as high as 30 fps, providing natural and smooth presentations even when using animation effects or showing videos from your PC. This presentation data can be shown from either a projector or a sub display using the HDMI or DVI output.

* The PCS-XG77 requires an optional PCSA-RXG77 HD upgrade software license.

Dual stream
1080/30P
Max. 1080/30P

PCS-XG100   IP Network   PCS-XG100
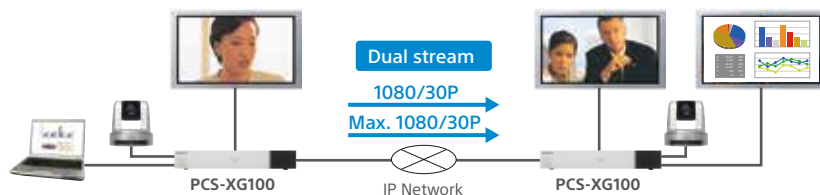
Intelligence

View-DR Image Enhancing Technology in SRG-120DH Camera

The SRG-120DH HD camera incorporates Sony-developed View-DR technology. This technology optimizes the brightness of each pixel to highlight shadows, while subduing areas of the image that are too bright, allowing operation in less-than-ideal lighting conditions.
View-DR technology can provide clear images even in dimly lit rooms, for example when using a projector, or in rooms with poor backlighting conditions.

Without View-DR function

With View-DR function

Simulated images

Up to 16 Multi-point Connections – Embedded MCU

Using optional MCU software[1], the PCS-XG100 and PCS-XG77 can be configured to communicate concurrently with up to 8 and 5 remote videoconferencing sites, respectively, using either an IP (H.323 protocol) or ISDN (H.320 protocol)[2] connection. They can also support videoconferences in which the connections are a combination of IP and ISDN by using a bridging function.[3]
Moreover, two PCS-XG100 systems – each installed with optional MCU software – can be cascaded with an IP connection to support a maximum of 16 sites. Also, two PCS-XG77 systems can support a maximum of 10 sites.

[1] PCSA-MCG106 (6-site connection) and PCSA-MCG109 (9-site connection) MCU software.
[2] An optional ISDN interface box (PCSA-B768S for 768 kbps or PCSA-B384S for 384 kbps) is required.
[3] The ISDN connection is limited to one site per one MCU software.

PCS-XG100 w/ MCU SW   IP   PCS-XG100 w/ MCU SW
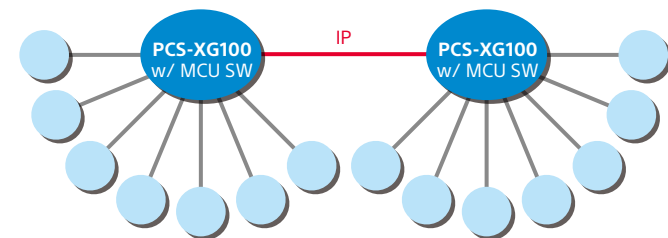
Multi-point videoconferencing for up to 16 sites

Up to Nine-screen Continuous-presence Mode

The PCS-XG100 and PCS-XG77 system supports three-screen, four-screen, six-screen, and nine-screen* continuous-presence modes in 1080p HD format, which provides clear images even on smaller sub screens. When using voice-activated switching in continuous-presence mode, the far-end site that is actively speaking is displayed on the largest of the six or nine sub screens. In addition, voice-activated switching is available when the unit is in full-screen mode. Plus, of course, fixed-site videoconferencing is available as well.

* The PCS-XG77 does not support nine-screens.

Six-split window

Nine-split window*

Picture on the local terminal

Picture on the local terminal

Six-screen and nine-screen continuous presence modes

Simulated images

Intelligent QoS for Stable and Secure Videoconferencing

Both packages incorporate Intelligent QoS control which greatly reduces the video artifact caused by packet losses, regardless of the transmission distance, by applying the following three methods adaptively in accordance with the network condition:
- Adaptive FEC (Forward Error Correction)
- Real-time ARQ (Automatic Repeat reQuest)
- ARC (Adaptive Rate Control)

For more information on the Intelligent QoS mechanism, refer to the "Technical Note" insert.

Without Intelligent QoS

With Intelligent QoS

Simulated images

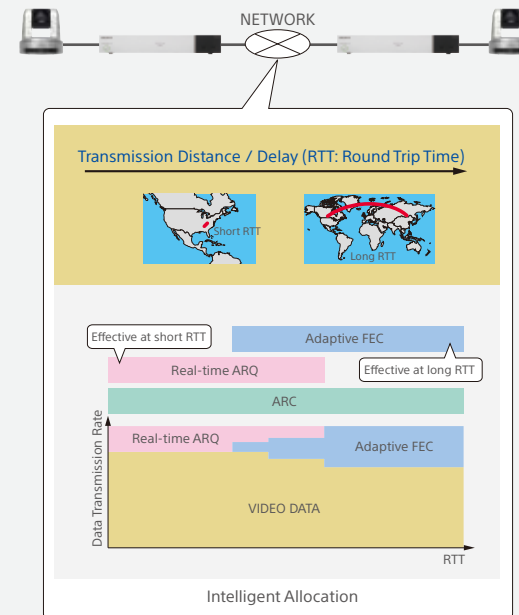## Advanced Encryption Standard (AES) for High Security

Secure videoconferencing over a network is achieved because the PCS-XG100 and PCS-XG77 support 128-bit AES encryption in compliance with ITU-T H.233/H.234/H.235 standards. When the encryption mode is active, video, audio, and presentation data are encrypted for the duration of the videoconference.

Technical Note

Sony's Intelligent QoS Functions

Sony has designed and implemented Intelligent QoS functions in its HD visual communication systems.
The system optimally allocates the amount of ARQ, FEC, and video data based on the bandwidth available, which is determined by the ARC function. FEC is performed with larger FEC blocks and the number of parity packets is 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.

NETWORK

Transmission Distance / Delay (RTT: Round Trip Time)

Short RTT

Long RTT

Effective at short RTT

Adaptive FEC

Real-time ARQ

Effective at long RTT

ARC

Real-time ARQ

Adaptive FEC

Data Transmission Rate

VIDEO DATA

RTT

Intelligent Allocation

Usability

Video Annotation Function*

For effective communication, the PCS-XG100 and PCS-XG77 support a video annotation function. Conference participants can clearly point out specific parts of shared data, including live images and presentation data, by simply writing on a tablet.
This function can help you minimize time and effort in your communication, and allow you to deliver a clear and strong message.

* A commercially available third-party tablet device is required.
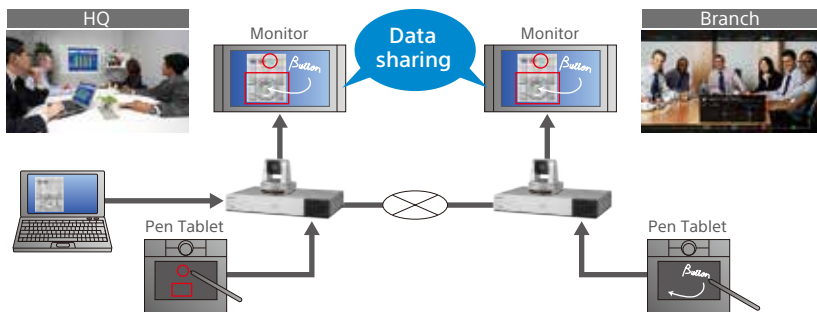
## Simple Setup and Easy Operation with an Intuitive Menu GUI

The PCS-X100 and PCS-XG77 have been thoughtfully designed with an intuitive GUI, utilizing translucent cascading menus. The simple layer structure and easy functionality allow you to operate the videoconferencing system, including the camera, more easily than ever before.

Simulated image

One-touch Dialing With a Convenient RF Remote Commander

An ergonomically designed RF remote commander makes dialing easy – just press the button to specify the thumbnail image of any contact registered on the menu GUI. Unlike an IR (infrared ray) remote commander, an RF (radio frequency) commander is omnidirectional, and can transmit a command from any direction.
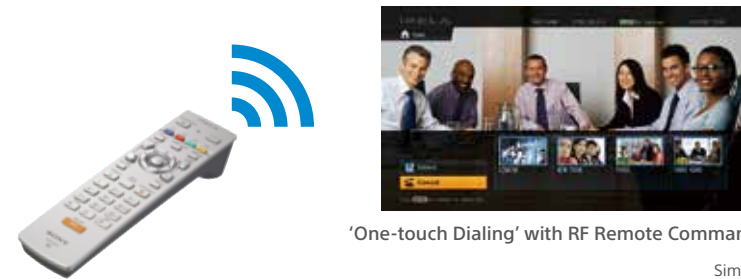

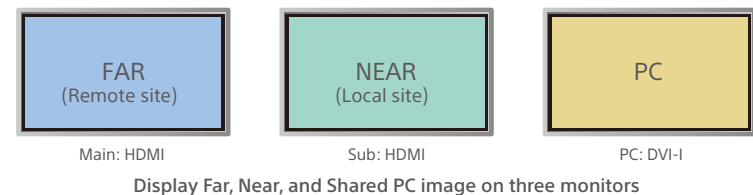'One-touch Dialing' with RF Remote Commander

Simulated image

Multiple Display Layout

Users can select the following display layouts: Full Screen, Picture-in-Picture (PinP), Picture-and-Picture (PandP), and a Side-by-Side split screen. By selecting any of these flexible display patterns, both videoconferencing images and presentation data can be displayed in ways that are effective and pleasing to the eye.
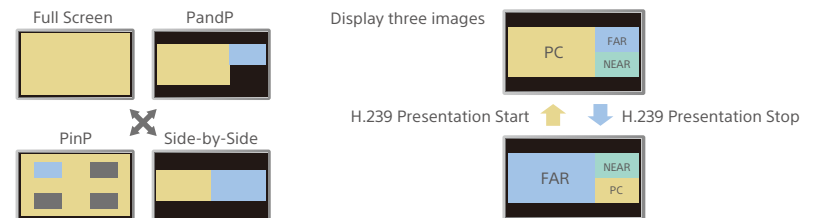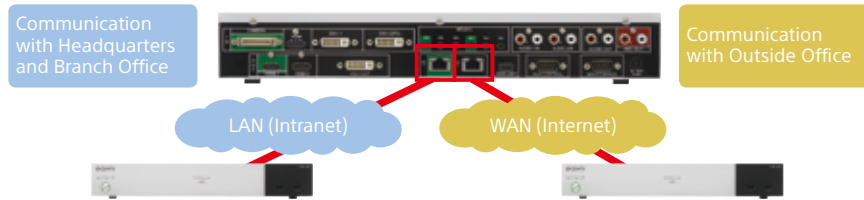

Triple Monitor Mode

The PCS-XG100 system provides a triple monitor mode. This function is useful when you want to use separate monitors to display images of Far (remote site), Near (local site), and PC output separately and use a full-screen display size for each.

FAR (Remote site)	NEAR (Local site)	PC
Main: HDMI	Sub: HDMI	PC: DVI-I

Display Far, Near, and Shared PC image on three monitors

Dual Network Interfaces for LAN and WAN Connections

For ease of use in office environments, the PCS-XG100 is equipped with dual network interfaces; one for a LAN, the other for a WAN connection. This allows you to have a multi-point conference between a LAN and WAN.

Communication with Headquarters and Branch Office

Communication with Outside Office
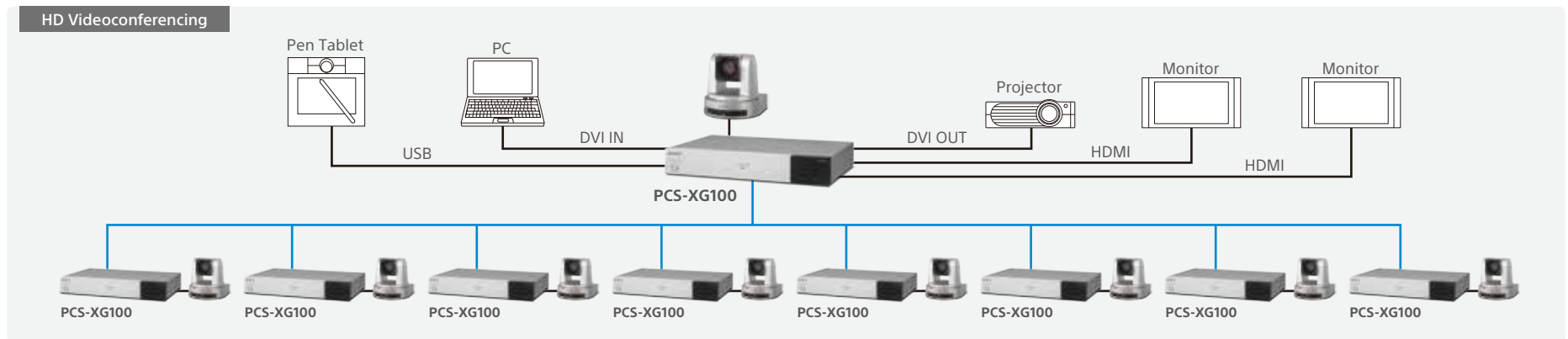
LAN (Intranet)

WAN (Internet)

HD Recording Via USB Port

The PCS-XG100 and PCS-XG77 are equipped with two USB ports on the front panel, which are for HD recording on USB 2.0 memory.*

* Sony's USM32GM and USM32GR are tested. The FAT32 format is required before use.

USB Ports (USB2.0)   USB Flash

Direct Connections From Mobile Endpoint to the PCS-XG100 and PCS-XG77 Systems

By installing an optional mobile access software license – the PCSA-SAG8 for the PCS-XG100[1] and PCS-XG77[2], and PCSA-SAG1 for the PCS-XG77 – these system can be connected from mobile endpoint devices installed with IPELA Communication Mobile software (both Android and iOS are available).

[1] The PCS-XG100 requires installation of optional PCSA-MCG109 multi-point access software, and can access up to eight mobile endpoints.

[2] The PCS-XG77 requires installation of optional PCSA-MCG106 multi-point access software, and can access up to five mobile endpoints.

Other Features

- Convenient HDMI input for versatile inputs including a camcorder.
- DVI-I input allows users to connect a PC.
- Kiosk mode supports user-friendly and error-free operation.
- Support for IPv6.
- Support for H.460 Firewall Traversal.
- Up to 100 camera preset positions can be stored each with a thumbnail image for easy recall.

Sample System Configurations

HD Videoconferencing

Pen Tablet   PC   Projector   Monitor   Monitor

USB   DVI IN   DVI OUT   HDMI   HDMI

PCS-XG100

PCS-XG100   PCS-XG100   PCS-XG100   PCS-XG100   PCS-XG100   PCS-XG100   PCS-XG100   PCS-XG100

Optional Accessories

SRG-120DH
Full HD 12x Opt. zoom
PTZ Camera

SRG-300H
Full HD 30x Opt. zoom
PTZ Camera

SRG-300H/W
Full HD 30x Opt. zoom
PTZ Camera

BRC-H900
Full HD 3CMOS 14x Opt.
zoom PTZ Camera

BRC-H700
1/3-Type 3CCD HD
Camera

BRC-Z700
1/4 Type 3CMOS HD
Camera

BRC-Z330
HD CMOS Camera

PCSA-B768S
ISDN I/F Box 768 Kbps

PCSA-B384S
ISDN I/F Box 384 Kbps

PCS-A1
Omnidirectional Microphone
(Two PCS-A1 mics are supplied with the PCS-XG100)
(One PCS-A1mic is supplied with the PCS-XG77)

Optional Software

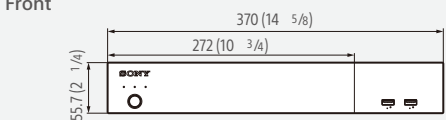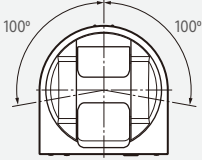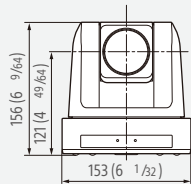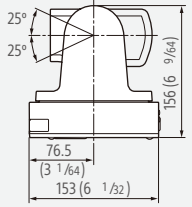| Model	Compatible Product	Description
PCSA-MCG106	PCS-XG100 PCS-XG77	Embedded MCU software license 6 sites
PCSA-MCG109	PCS-XG100	Embedded MCU software license 9 sites
PCSA-RXG77	PCS-XG77	Full HD upgrade software license
PCSA-SAG8	PCS-XG100 PCS-XG77	Mobile access software license
PCSA-SAG1	PCS-XG77	Mobile access software license

PCS-XG100S

PCS-XG77S

Dimensions

PCS-XG100S/PCS-XG77S

Unit: mm (inches)

Top

Front
370 (14 5/8)
272 (10 3/4)
55.7 (2 1/4)

Side
20 (13 /16)
244 (9 5/8)
251 (10)

SRG-120DH

Top
100°　100°

Front
156 (6 9/64)
121 (4 49/64)
153 (6 1/32)

Rear

Side
25°
25°
156 (6 9/64)
76.5
(3 1/64)
153 (6 1/32)

Specifications

	PCS-XG100	PCS-XG77
Camera (Optional SRG-120DH camera)		
Image Sensor	1/2.8-type "Exmor" CMOS image sensor	
Image Sensor (Number of Effective Pixels)	Approx. 3.27 Megapixels	
Output Pixels (H x V)	1920 x 1080	
Frame Rate	59.94 fps	
S/N Ratio	50 dB	
Brightness Control	Auto/Manual	
Zoom Ratio	x144 zoom (x12 optical zoom, x12 digital zoom)	
Focusing System	Auto/Manual	
Horizontal Viewing Angle	Approx. 71°	
Focal Length	f = 3.9 mm to 46.8 mm	
F-Number	F1.8 to F2.0	
Pan/Tilt Angle	Pan ±100°/Tilt ±25°	
Preset Position	100 positions (Saved in Codec Unit)	
Power Supply	Supplied from Codec Unit	
Other Features	Auto Gain Control, Auto White Balance, Backlight Compensation, VISCA output to the second camera, View-DR	
Key Features		
Multipoint Capability	Up to 9 sites (H.323) with optional software PCSA-MCG109. (6 sites with H.320)	Up to 6 sites with optional software PCSA-MCG106. (6 sites with H.320)
	10 to 16 sites (H.323) requires two PCS-XG100 units with optional software PCSA-MCG109 using cascaded connection. (10 sites with H.320)	7 to 10 sites (H.323) requires two PCS-XG77 units with optional software PCSA-MCG106 using cascaded connection. (10 sites with H.320)
Data Sharing	PC images up to 1080p resolution is supported.	PC images up to SXGA resolution is supported. (Optional: up to 1080p)*1
	Video annotation function is available.	
Lip Synchronization	AUTO/OFF	
Mic Off Function	ON/OFF	
Video		
Maximum Frame Rate	H.263 QCIF 30 fps, CIF 30 fps, 4CIF 30 fps	
	H.264 QCIF 30 fps, CIF 30 fps, 4CIF 30 fps, wCIF 30 fps, w432p 30 fps, w4CIF 30 fps, 720p 60 fps, 1080p 60 fps	H.264 QCIF 30 fps, CIF 30 fps, 4CIF 30 fps, wCIF 30 fps, w432p 30 fps, w4CIF 30 fps, 720p 60 fps, 1080p 60fps*1
Communication Protocol Standards	H.263, H.263+, H.263++, H.264, H.264 High profile, MPEG-4 SP@L3	
Resolution	4:3 QCIF (176 x 144), CIF (352 x 288), 4CIF (704 x 576)	
	16:9 wCIF/w288p (512 x 288), w432p (768 x 432), w4CIF (1024 x 576), 720p (1280 x 720), 1080p (1920 x 1080)	16:9 wCIF/w288p (512 x 288), w432p (768 x 432), w4CIF (1024 x 576), 720p (1280 x 720) (Optional: 1080p (1920 x 1080))*1
Bit Rate	64 kbps to 16,000 kbps	64 kbps to 4,096 kbps
Screen Layout	Full Screen, PinP, PandP, SideBySide, PandPandP	
Audio		
Bandwidth and Coding	MPEG-4 AAC Stereo: 22 kHz at 192 kbps (IP only) MPEG-4 AAC Mono: 14 kHz at 48 kbps, 64 kbps, 96 kbps MPEG-4 AAC Mono: 22 kHz at 64 kbps, 96 kbps (IP only) G.711: 3.4 kHz at 56 kbps, 64 kbps G.722: 7.0 kHz at 48 kbps, 56 kbps, 64 kbps G.728: 3.4 kHz at 16 kbps	
Other Features	Stereo echo-cancelling (ON/OFF), Auto Gain Control, Noise Reduction	

	PCS-XG100	PCS-XG77
Network		
Protocols	TCP/IP, UDP/IP, DHCP, DNS, HTTP, TELNET, SSH, SNMP, NTP, ARP, RTP/RTCP	
QoS (Quality of Service)	Adaptive FEC (Forward Error Correction), Real-time ARQ (Auto Repeat reQuest), ARC (Adaptive Rate Control), IP Precedence, DiffServe	
Other Network Features	Packet reordering, TCP/UDP port setting, NAT, PPPoE, UDP shaping, Encryption, Auto gatekeeper discovery,UPnP, URI Dialing, IPv6	
Interface		
Video Input	External video inputs (HDMI x1, DVI-I x2)	External video inputs (DVI-I x2)
Video Output	HDMI x2, DVI-I x1	HDMI x1, DVI-I x1
Control Input	RS-232C x1	
Audio Input	External analog microphone input Mini-jack (Plug in power) x6 (L/R)	
	HDMI (video, audio) x1	–
	Audio Input (MIC/AUX) x 2 (Phono jack, stereo)	
Audio Output	HDMI (video, audio) x1, Line Output (Phono jack, stereo) x1, REC Output (Phono jack, stereo) x1	
Network Port	10BASE-T/100BASE-TX/1000BASE-T x2, ISDN Unit Interface x1	10BASE-T/100BASE-TX/1000BASE-T x1, ISDN Unit Interface x1
USB Slots	2 (Pen Tablet, USB Memory)	
Maintenance Interface	RS-232C x1	
Standard		
Communication Protocol Standards	ITU-T H.320, H.323, IETF SIP	
ITU-T (excluding audio/video standards)	H.231, H.241 H.242, H.243, H.245, H.350, H.460.18, H.460.19	
IETF	RFC2190, RFC3016, RFC3047, RFC3261, RFC3264, RFC3550, RFC3984, RFC4573, RFC4587, RFC4629, RFC4856, RFC4628, RFC5168	
Encryption	H.233, H.234, H.235 ver.3	
Far End Camera Control	H.224, H.281	
Frame Format	H.221, BONDING, H.225.0	
Dual Stream	H.239 (video and presentation data)	
General		
Power Requirements	DC 19.5 V (AC Adapter : AC 100 V to 240 V, 50/60 Hz)	
Power Consumption	58.5 W	
Power Consumption (Standby)	23.4 W	
Operating Temperature	5°C to 35°C (41°F to 95°F)	
Storage Temperature	-20°C to +60°C (-4°F to +140°F)	
Operating Humidity	20% to 80% (no condensation)	
Storage Humidity	20% to 80% (no condensation)	
Dimensions (W x H x D)	Codec: 370 x 60 x 244 mm (14 5/8 x 2 3/8 x 9 5/8 inches) (excluding protrusions)	
	Camera unit (SRG-120DH camera bundled): 153 x 156 x 153 mm (6 1/8 x 6 1/4 x 6 1/8 inches) (excluding protrusions)	
Mass	Codec: 2.3 kg (5 lb 1.1 oz)	
	Camera unit (optional SRG-120DH): 1.45 kg (3 lb 3.1 oz)	
Supplied Accessories	PCS-A1 microphone (2)	PCS-A1 microphone (1)
	AC adapter (1), HDMI cable (3m) (1), RF Remote Commander Unit (1), Batteries for Remote Commander unit (2), CD-ROM (Operating instructions, Before using this unit, Quick connection guide) (1), Before using this unit (1), Installation Guide (1), Quick connection guide (1), Warranty booklet (1), Camera cable (3m) for HD camera (1)	

*1 Requires an optional PCSA-RXG77 full HD upgrade software license.

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