

SONY

VIDEO COMMUNICATION SYSTEM-TECHNICAL DOCUMENTATION

Integration with Sony Network Camera

IPELA

PCS-G50/G50P Ver. 2.61 or later

PCS-G70/G70P Ver. 2.61 or later

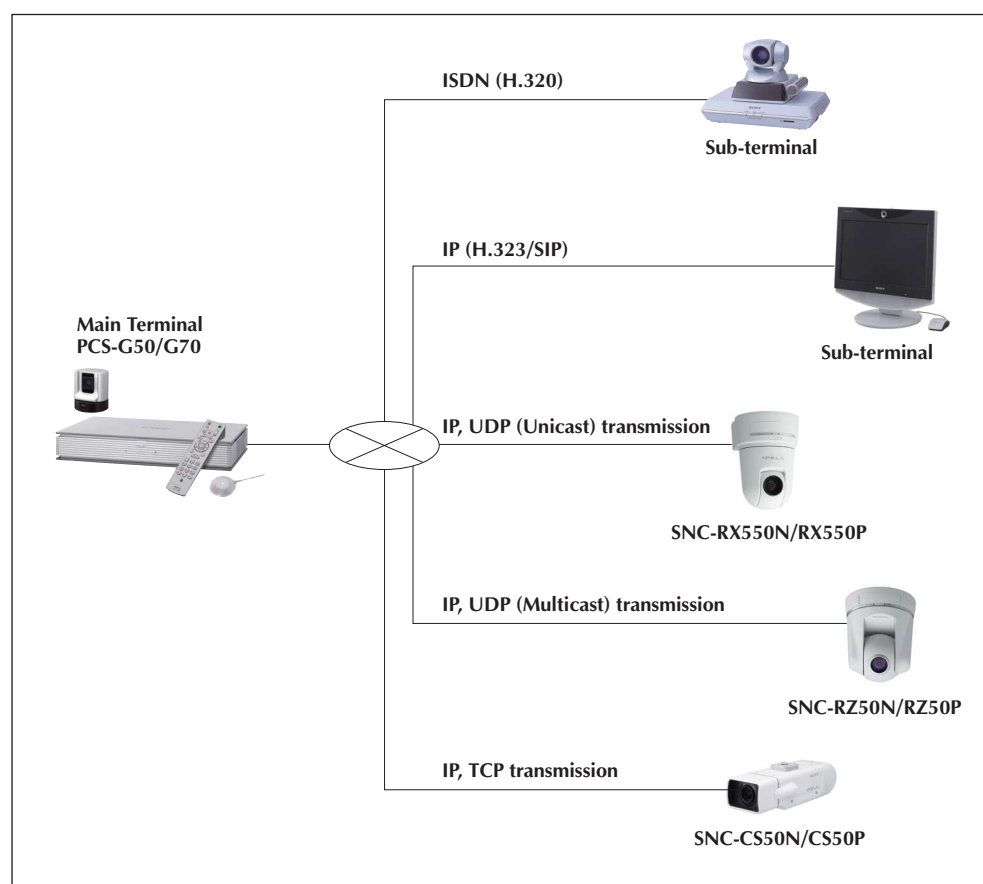
Introduction

The Sony Visual Communication System PCS-G50/G70 is the first in the industry with features that allow connection with network cameras. These features allow you to connect to Sony network cameras as if you were calling a videoconference partner. In addition to viewing network camera images through the PCS-G50/G70, audio exchange is also possible between the PCS-G50/G70 and the network cameras, and pan, tilt and zoom operations can be performed on network cameras through the PCS-G50/G70. Furthermore, the cameras can be used to conduct multipoint conferences with a mixture of connections, such as IP and ISDN. These integration features expand the potential of new applications beyond conventional videoconferencing.

This document describes the network camera integration features supported by the PCS-G50/G70.

* In this document, PCS-G50/G70 refers to both the NTSC PCS-G50/G70 and PAL PCS-G50P/G70P models.

Connection Example



Main Features

Video/Audio Types

H.264 and MPEG4 are supported for video (for single codec only).

G.711 is supported for audio.

You can monitor real-time network camera images and transmit voice data bi-directionally through the PCS-G50/G70 during a videoconference.

Easy Connection

Through the phone book (called the “network camera list”) of the PCS-G50/G70, you can easily connect to a network camera using a procedure similar to that for videoconferencing. You can register up to 20 network cameras in the network camera list.

- The network camera list is separate from the 500 items in the ordinary phone book.
- Private and shared phone books are not supported.
- To register a network camera in the network camera list, see the PCS-G50/G70 Operating Instructions Manual (Version 2.6).

Multipoint Connection

Up to 6 points (including the local site) can be connected, and split-screen viewing is possible. Multipoint connection in a mixed IP (H.323/SIP) and ISDN environment is possible for video communication terminals.

- For multipoint connection, MCU software for LAN connection (sold separately) is required.
- For multipoint connection in a mixed SIP and ISDN environment, SIP software and MCU software for ISDN connection (sold separately) are required.

Far End Camera Control

You can use the far end camera control function when connected to a network camera. The procedures for acquiring broadcast permission for the target network camera and for controlling the far end camera are the same as for when the PCS-G50/G70 is used at a remote site.

- To use the far end camera control function, you must have the proper permission settings. (See p.5.)
- If the far end camera control function is enabled by the PCS-G50/G70, it can also be used from video communication terminals as sub-terminals.
- The far end camera control function can be used in full screen display mode only.

Preset Function

You can use the preset function (from 1 to 6 preset positions) for the network camera connection. You can also register preset positions through the PCS-G50/G70. The procedures for registering and calling up the presets are the same as for when the PCS-G50/G70 is used at a remote site.

- To use the preset function, you must have the proper permission settings. (See p.5.)

Status Indication

As with the videoconferencing connection, you can use the Status menu for the network camera connection to check the communication status during communication, as well as the previous communication status while not in communication.

- When using a TCP connection, lost and recovered packet counts are not displayed.

Web Function

Using Microsoft® Internet Explorer® (version 5.0 or higher, 6.0 is recommended), you can access the PCS-G50/G70 to perform control and change settings for a network camera.

Terminal Name Indication

You can use the terminal name indication function for the network camera connection.

When this feature is enabled, the name of the title bar configured on the System Menu of the connecting network camera is displayed on the videoconferencing screen.

Other Precautions

You cannot perform the following PCS-G50/G70 functions when connected to a network camera (even between videoconferencing terminals):

- Sending/receiving a presentation image
- Sending dual video
- Sending a still image
- Encrypted conference
- Cascade connection

For the reasons outlined below, do not connect to network cameras used for monitoring. It is recommended that network cameras be installed exclusively for videoconferencing.

- The PCS-G50/G70 does not support JPEG. JPEG recording may stop when the PCS-G50/G70 is connected to a monitoring system where Sony Recorder Software (RealShot Manager, IMZ series), Sony Network Recorder (NSR series), etc. is used.
- Connecting a video communication terminal to a network camera used for fixed monitoring and far-end controlling may result in a loss of monitoring information.

When the SNC-RX550N/RX550P is installed on a desktop, the video image will be displayed upside down. The PCS-G50/G70 has no vertical flip function.



(This image illustrates the connection between video communication terminals and network cameras. The screen image is simulated.)

User Authority

Multiple users can be registered for a Sony network camera, and a name, password and authority can be specified for each user. Connection from the PCS-G50/G70 to a network camera is made using a predefined user name and password. The operation and settings for a network camera can be limited based on the user authority.

Network Camera User Authority

Table 1 shows the functions available for the administrator and user authorities.

Note Only those functions related to PCS integration are listed.

Table 1

Function \ Authority	Administrator	User				
		Full	Pan/ Tilt	Preset Position	Light	View
Monitor live image	●	●	●	●	●	●
Call up preset position*1	●	●	●	●	×	×
Perform pan/tilt/zoom operations	●	●	×	×	×	×
Receive audio	●	●	●	●	●	●
Control the setting menu*2	●	×	×	×	×	×

● : Function available × : Function not available

*1: Up to 6 preset positions can be used.

Through the PCS-G50/G70, you can call any of the six registered preset positions (No.1 to No.6) in the preset position table in the network camera's Preset Position Menu.

*2: This function overwrites the network camera's settings. See the "Determined Communication Mode Based on Authority" section for details.

Operating with Administrator Authority in PCS Integration

When you connect using the administrator authority, you can change the settings of a network camera from the PCS-G50/G70. You can change the settings through the Network Camera page in the PCS's General Setup menu. If "Auto" is selected for "Bit Rate," "Frame Rate," "Mode" and "Image Size," the connection is made using the settings of the connecting network camera.

If the connection is made using the administrator authority with the setting items set to "Auto," the connection can be made by properly changing the network camera settings even if a preconfigured item in the network camera setup is not supported by the PCS-G50/G70. For details on the communication modes supported by the PCS-G50/G70, refer to "Basic Specifications" at the end of this document.

In addition, the far end camera control and preset functions can be used under the administrator authority.

When the network camera settings are changed via the PCS-G50/G70, the previously set network camera settings are automatically restored after communication has ended.

Note

- Connections made using the administrator authority automatically change the network camera settings and may affect a monitoring system using the network camera, so you must consult with your system administrator beforehand.
- If a connection shuts down due to a failure such as a blackout, the settings cannot be restored. It is therefore recommended to save the camera's setting data in a file prior to connection. For details on how to save/restore the setting data, see the User's Guide that came with the network camera.

When a connection to a network camera is made using the administrator authority, the modes described below will automatically be changed.

- **Audio Codec**

If the audio codec setting (used to send audio) of the network camera is G.726, it will automatically be changed to G.711.

- **Audio (Bidirectional)**

If the audio upload setting of the network camera is disabled, it will automatically be enabled to perform voice communication from the video communication terminal to the network camera. If the microphone setting of the network camera is OFF, it will automatically be turned ON to perform voice communication from the network camera to the video communication terminal as well.

- **Multicast Streaming**

If the multicast streaming setting of the network camera is OFF and the connection is made through UDP (Multicast), multicasting will automatically be turned ON for the connection using UDP (Multicast).

- **Unicast Streaming**

If the network camera's unicast streaming setting (video or audio port number) overlaps with the port number used by the PCS-G50/G70, it will automatically be changed to another number for connection.

Operating with User Authority in PCS Integration

You cannot change the network camera setting items through the PCS-G50/G70. You must use the network camera to configure settings related to the connection with the PCS-G50/G70. (Settings configured through the Network Camera page in the PCS's General Setup menu will be disabled.)

To use the camera control and preset functions via the PCS-G50/G70, you must properly configure the network camera's User menu. (See Table 1.)

Determined Communication Mode Based on Authority

("PCS" in the table below refers to the main terminal of the PCS-G50/G70.)

Camera Menu Setting (on Network Camera)		Authority Used for Connection		
		Administrator	User	
Mode	Single Codec	H.264	Connection is made using the PCS setting value regardless of the network camera setting. ^{*1} When the PCS setting is "Auto," however, the network camera settings are prioritized.	Connection is made using the network camera setting (H.264 single codec).
		MPEG4		Connection is made using the network camera setting (MPEG4 single codec).
		JPEG	Connection is made using the PCS setting value regardless of the network camera setting. When the PCS setting is "Auto," however, connection is made by automatically changing the network camera setting to a mode supported by the PCS (H.264 single codec). ^{*1}	Connection is not possible if no action is taken. To make the connection, use the network camera to switch the mode to one that is supported by the PCS.
	Dual Codec			
Audio Codec	G.711	Connection is made using G.711.	Connection is made using the network camera setting (G.711).	
	G.726	Connection is made by automatically changing the network camera setting to the audio codec supported by the PCS (G.711) regardless of the network camera setting. ^{*1}	Audio is not available between the video communication terminal and network camera. ^{*2}	
Image Size	QQVGA	Connection is made using the PCS setting value regardless of the network camera setting. ^{*1} When the PCS setting is "Auto," however, the network camera setting is prioritized.	Connection is made using the network camera setting (QQVGA).	
	QVGA		Connection is made using the network camera setting (QVGA).	
	VGA	Connection is made using the PCS setting value regardless of the network camera setting. When the PCS setting is "Auto," however, connection is made by automatically changing the network camera setting to an image size supported by the PCS (QVGA). ^{*1}	Connection is not possible if no action is taken. To make the connection, use the network camera to switch the image size to one that is supported by the PCS.	
Bit Rate	Connection is made using the PCS setting value regardless of the network camera setting. ^{*1} When the PCS setting value is "Auto," however, the network camera setting is prioritized. ^{*3}	Connection is made using the network camera setting.		
Frame Rate				
Transmission Mode (TCP/UDP)	Connection is made using the PCS setting value regardless of the network camera setting. ^{*1}	Connection is made using the PCS setting. In addition, the network camera setting is required. ^{*4}		

^{*1}: When the network camera settings are changed for the connection, the previously set network camera settings are automatically restored after communication has ended.

^{*2}: Videoconferencing connection is possible, even if G.726 is selected. Upon connection, a message is displayed prompting the user to switch the audio codec.
To use audio for videoconferencing, switch to G.711 on the network camera.

^{*3}: Even if 30fps is selected, the rate is automatically set to 15fps (NTSC) or 12fps (PAL) if the mode is H.264 and the transmission mode is TCP.

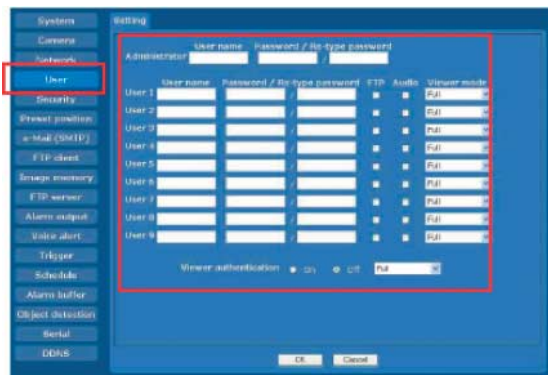
^{*4}: If the network camera setting is improper, a message is displayed prompting the user to make the proper setting.

How to Configure User Authority

User authority must be configured on both the network camera and the PCS-G50/G70. This section provides an overview of the settings. For details, see the User's Guide that came with the network camera and the PCS-G50/G70 Operating Instructions Manual (Version 2.6).

On Network Camera

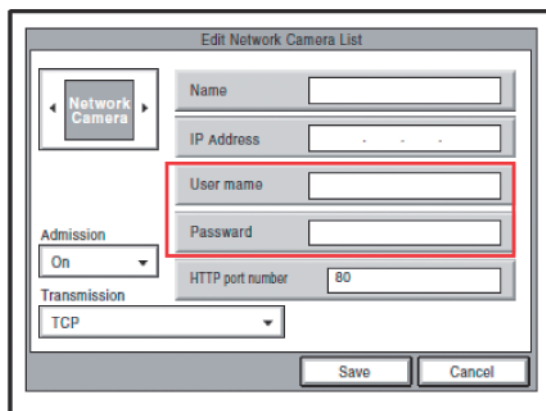
Register users beforehand in the User menu in the Administrator menu.



On PCS-G50/G70

On the network camera list edit screen, enter a name and IP address for the camera you want to register, as well as the user name and password specified on the network camera.

(To connect using the administrator authority, the user name and password must be registered as "Administrator" in the network camera's User menu.)



Communication Mode for Multipoint Connection

The operation specifications and the determined communication mode may vary according to the user authority used for connection.

Some examples are provided below. ("PCS" in the table below refers to the main terminal of the PCS-G50/G70.)

Operational Specifications 1: When only network cameras are connected as sub-terminals

Operational Specifications				Connection
Condition		Authority	Determined Communication Mode	
				1-a
	<p>When each setting on the main PCS's network camera page is set to "Auto":</p> <p>In principle, operations follow each network camera's setting values.*1</p>	See example 1-a-1(2)		
User Authority	<p>Regardless of the main PCS's network camera settings, operations follow each network camera's setting values.</p>	See example 1-a-2		
Mixed Administrator and User Authority	Cameras connected with the administrator authority and cameras connected with the user authority operate independently of each other, with the specifications described above.			
1-b	When sub-terminals exceed the range of the LAN bandwidth of the main PCS	Administrator Authority	When the bit rate exceeds the PCS's LAN bandwidth, it is automatically changed to the optimum rate regardless of the main PCS's network camera settings.	See example 1-b-1
		User Authority	When the bit rate exceeds the PCS's LAN bandwidth, the mode is changed to "Voice Only" from the added camera regardless of the main PCS's network camera settings.	See example 1-b-2
		Mixed Administrator and User Authority	When the bit rate exceeds the PCS's LAN bandwidth, it is automatically changed to the optimum rate for cameras connected with the administrator authority, while the mode is changed to "Voice Only" for cameras connected with the user authority if capability exchange is required again, regardless of the main PCS's network camera settings.	See example 1-b-3

*1: The PCS automatically switches communication modes not supported by the PCS (JPEG, dual codec, VGA, G.726, 30fps on H.264 and TCP) to a supported one.

Operational Specifications 2: When network cameras and communication terminals are connected as sub-terminals

Operational Specifications				Connection
Condition		Authority	Determined Communication Mode	
	User Authority	When a communication terminal is connected as a sub-terminal, the mode is changed to "Voice Only" for all cameras that require capability exchange again regardless of the main PCS's network camera settings.	See example 2-a-2	
	Mixed Administrator and User Authority	Cameras connected with the administrator authority and cameras connected with the user authority operate independently of each other, with the specifications described above.	See example 2-a-3	
2-b	When sub-terminals exceed the range of the LAN bandwidth of the main PCS	Administrator Authority	When a communication terminal is connected as a sub-terminal, the bit rate is changed to the optimum rate regardless of the main PCS's network camera settings.	See example 2-b-1
		User Authority	When a communication terminal is connected as a sub-terminal, the mode is changed to "Voice Only" for all cameras that require capability exchange again regardless of the main PCS's network camera settings.	See example 2-b-2
		Mixed Administrator and User Authority	Cameras connected with the administrator authority and cameras connected with the user authority operate independently of each other, with the specifications described above.	See example 2-b-3

Operational Specifications 3: When the frame rate limit is exceeded

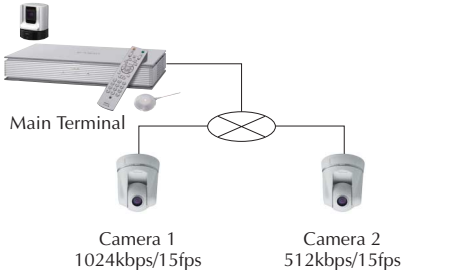
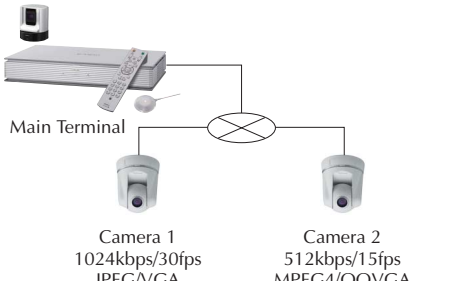
If the frame rate limit has been exceeded, it means that 4 or more terminals with 30fps are connected.

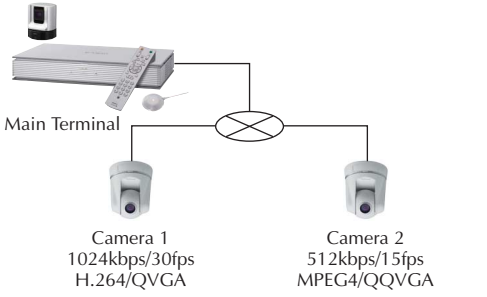
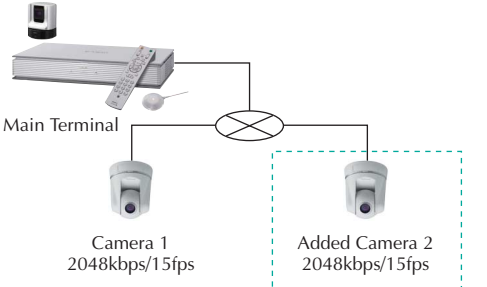
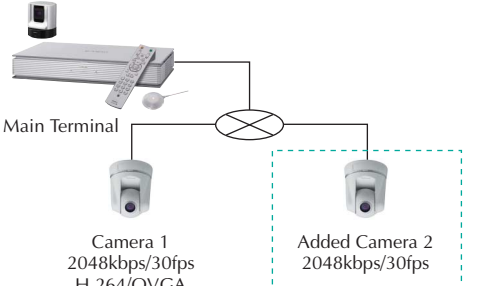
Operational Specifications				Connection
Condition		Authority	Determined Communication Mode	
3-a	When connection is made within the range of the main PCS's frame rate limit	Administrator Authority	<p>When each setting on the main PCS's network camera page is set to a setting other than "Auto": Connection is made using the PCS setting values.</p> <p>When each setting on the main PCS's network camera page is set to "Auto": In principle, operation follows each network camera's setting values.*1</p>	
		User Authority	<p>Regardless of the main PCS's network camera settings, operation follows each network camera's setting values.</p>	
		Mixed Administrator and User Authority	Cameras connected with the administrator authority and cameras connected with the user authority operate independently of each other, with specifications described above.	
3-b	When the frame rate exceeds the main PCS's frame rate limit	Administrator Authority	When the frame rate exceeds the PCS's frame rate limit, it is automatically changed to the optimum rate regardless of the main PCS's network camera settings.	See example 3-b
		User Authority	When the frame rate exceeds the PCS's frame rate limit, the mode is changed to "Voice Only" for all cameras that require capability exchange again regardless of the main PCS's network camera setup.	
		Mixed Administrator and User Authority	Cameras connected with the administrator authority and cameras connected with the user authority operate independently of each other, with the specifications described above.	

*1: The PCS automatically switches communication modes not supported by the PCS (JPEG, dual codec, VGA, G.726, 30fps on H.264 and TCP) to a supported one.

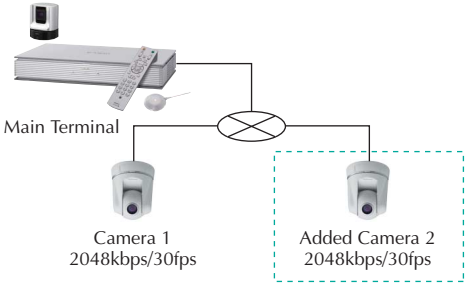
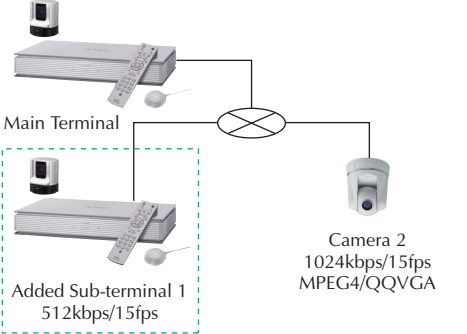
Connection Example

Note The determined bit rate and frame rate of the network cameras can be checked through the "Rate" and "Frame Rate" items in the PCS status menu (Page 1/3). Note that "Rate" in the status menu includes the audio transfer rate.

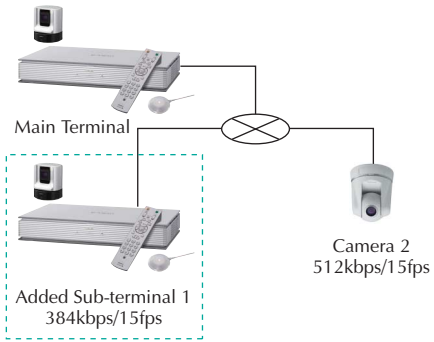
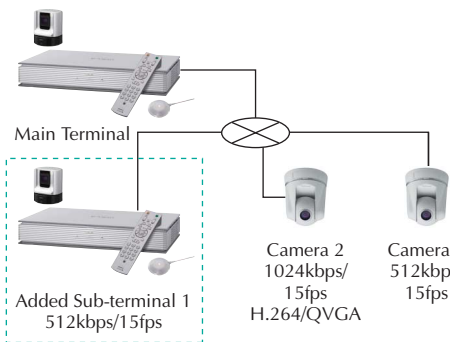
Example	Description	Setting Example/Determined Communication Mode				
1-a-1(1)	 <p>When the sum of the network camera bit rates (1024kbps + 512kbps) does not exceed the main PCS's LAN bandwidth (4Mbps) and when each setting on the main PCS's network camera page is set to a setting other than "Auto," cameras 1 and 2 are connected using the PCS setting values.</p> <p>In the example above, camera 1 is configured via the network camera settings to have a 1024kbps bit rate, but the rate is automatically changed to 512kbps when connected to the PCS.</p>	<p>Settings on Main Terminal (PCS)</p> <p>Communication Setup: LAN Bandwidth: 4Mbps</p> <p>General Setup/Network Camera: Bit Rate: 512kbps Frame Rate: 15fps Mode: H.264 Image Size: QVGA</p> <p>Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1093 817 1436 1030"> <tr> <td>Camera 1</td> <td rowspan="2">Each camera is connected using the values (bit rate, frame rate, mode and image size) specified by main terminal.</td> </tr> <tr> <td>Camera 2</td> </tr> </table>	Camera 1	Each camera is connected using the values (bit rate, frame rate, mode and image size) specified by main terminal.	Camera 2	
Camera 1	Each camera is connected using the values (bit rate, frame rate, mode and image size) specified by main terminal.					
Camera 2						
1-a-1(2)	 <p>When the sum of the network camera bit rates (1024kbps + 512kbps) does not exceed the main PCS's LAN bandwidth (4Mbps) and when each setting on the main PCS's network camera page is set to "Auto," cameras 1 and 2 operate using the network camera setting values. Communication mode settings not supported by PCS, however, are changed automatically.</p> <p>In the example above, camera 1 is configured as JPEG/VGA in the network camera settings. When it is connected to the PCS, it is automatically changed to H.264/QVGA. However, a mixture of different bit rates, frame rates, modes (H.264 or MPEG4), and image sizes (QVGA or QQVGA) can be used.</p>	<p>Settings on Main Terminal (PCS)</p> <p>Communication Setup: LAN Bandwidth: 4Mbps</p> <p>General Setup/Network Camera: Bit Rate: Auto Frame Rate: Auto Mode: Auto Image Size: Auto</p> <p>Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1093 1377 1436 1792"> <tr> <td>Camera 1</td> <td>Bit Rate: 1024kbps (No change) Frame Rate: 30fps (No change) Mode: Changes from JPEG to H.264 Image Size: Changes from VGA to QVGA</td> </tr> <tr> <td>Camera 2</td> <td>Bit Rate: 512kbps Frame Rate: 15fps Mode: MPEG4 Image Size: QQVGA (No change for any item)</td> </tr> </table>	Camera 1	Bit Rate: 1024kbps (No change) Frame Rate: 30fps (No change) Mode: Changes from JPEG to H.264 Image Size: Changes from VGA to QVGA	Camera 2	Bit Rate: 512kbps Frame Rate: 15fps Mode: MPEG4 Image Size: QQVGA (No change for any item)
Camera 1	Bit Rate: 1024kbps (No change) Frame Rate: 30fps (No change) Mode: Changes from JPEG to H.264 Image Size: Changes from VGA to QVGA					
Camera 2	Bit Rate: 512kbps Frame Rate: 15fps Mode: MPEG4 Image Size: QQVGA (No change for any item)					

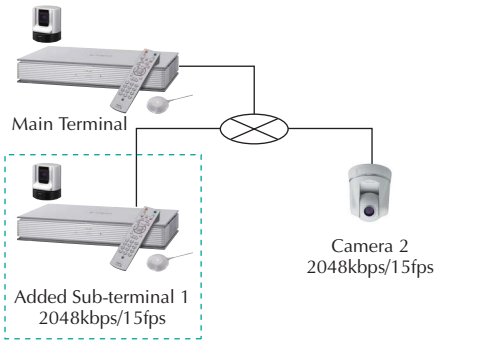
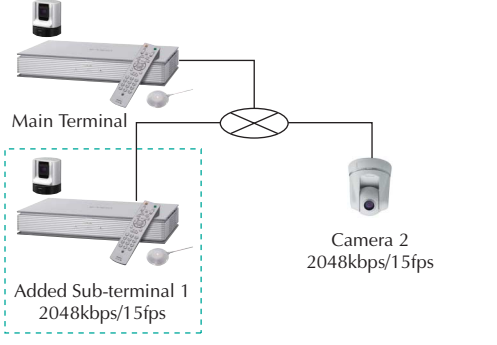
Example	Description	Setting Example/Determined Communication Mode				
1-a-2	 <p>When the sum of the network camera bit rates (1024kbps + 512kbps) does not exceed the main PCS's LAN bandwidth (4Mbps), cameras 1 and 2 operate using the network camera setting values. As shown above, a mixture of different bit rates, frame rates, modes (H.264 or MPEG4) and image sizes (QVGA or QQVGA) can be used.</p>	<p>Settings on Main Terminal (PCS)</p> <p>Communication Setup: LAN Bandwidth: 4Mbps</p> <p>General Setup/Network Camera: (Disabled even if configured)</p> <p>Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1085 555 1430 857"> <tr> <td data-bbox="1085 555 1182 719">Camera 1</td> <td data-bbox="1182 555 1430 719">Bit Rate: 1024kbps Frame Rate: 30fps Mode: H.264 Image Size: QVGA (No change for any item)</td> </tr> <tr> <td data-bbox="1085 719 1182 857">Camera 2</td> <td data-bbox="1182 719 1430 857">Bit Rate: 512kbps Frame Rate: 15fps Mode: MPEG4 Image Size: QQVGA (No change for any item)</td> </tr> </table>	Camera 1	Bit Rate: 1024kbps Frame Rate: 30fps Mode: H.264 Image Size: QVGA (No change for any item)	Camera 2	Bit Rate: 512kbps Frame Rate: 15fps Mode: MPEG4 Image Size: QQVGA (No change for any item)
Camera 1	Bit Rate: 1024kbps Frame Rate: 30fps Mode: H.264 Image Size: QVGA (No change for any item)					
Camera 2	Bit Rate: 512kbps Frame Rate: 15fps Mode: MPEG4 Image Size: QQVGA (No change for any item)					
1-b-1	 <p>When the sum of the network camera bit rates (2048kbps + 2048kbps) exceeds the main PCS's LAN bandwidth (4Mbps) due to the connection of camera2 ^{*2}, the bit rate is changed to the optimum value for cameras 1 and 2 regardless of the main PCS's network camera settings.</p>	<p>Settings on Main Terminal (PCS)</p> <p>Communication Setup: LAN Bandwidth: 4Mbps</p> <p>General Setup/Network Camera: Bit Rate: Auto Frame Rate: Auto Mode: Auto Image Size: Auto</p> <p>Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1085 1216 1430 1411"> <tr> <td data-bbox="1085 1216 1182 1265">Camera 1</td> <td data-bbox="1182 1216 1430 1411" rowspan="2">Bit rates are changed to the optimum value for each camera when they are connected.</td> </tr> <tr> <td data-bbox="1085 1265 1182 1411">Camera 2</td> </tr> </table>	Camera 1	Bit rates are changed to the optimum value for each camera when they are connected.	Camera 2	
Camera 1	Bit rates are changed to the optimum value for each camera when they are connected.					
Camera 2						
1-b-2	 <p>When the sum of the network camera bit rates (2048kbps + 2048kbps) exceeds the main PCS's LAN bandwidth (4Mbps) due to the connection of camera 2 ^{*2}, the mode changes to "Voice Only" for the terminal (camera 2) that is exceeding the bandwidth. (Camera 1's image is displayed.)</p>	<p>Settings on Main Terminal (PCS)</p> <p>Communication Setup: LAN Bandwidth: 4Mbps</p> <p>General Setup/Network Camera: (Disabled even if configured)</p> <p>Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1085 1680 1430 1944"> <tr> <td data-bbox="1085 1680 1182 1877">Camera 1</td> <td data-bbox="1182 1680 1430 1877">Bit Rate: 2048 kbps Frame Rate: 30fps Mode: H.264 Image Size: QVGA (No change for any item)</td> </tr> <tr> <td data-bbox="1085 1877 1182 1944">Camera 2</td> <td data-bbox="1182 1877 1430 1944">Changes to "Voice Only" mode</td> </tr> </table>	Camera 1	Bit Rate: 2048 kbps Frame Rate: 30fps Mode: H.264 Image Size: QVGA (No change for any item)	Camera 2	Changes to "Voice Only" mode
Camera 1	Bit Rate: 2048 kbps Frame Rate: 30fps Mode: H.264 Image Size: QVGA (No change for any item)					
Camera 2	Changes to "Voice Only" mode					

*2: If the network camera bit rate is configured as 2048kbps for both cameras 1 and 2, the sum exceeds the 4Mbps of the PCS's LAN bandwidth because the network camera bit rate does not include audio (G.711 = 64kbps).

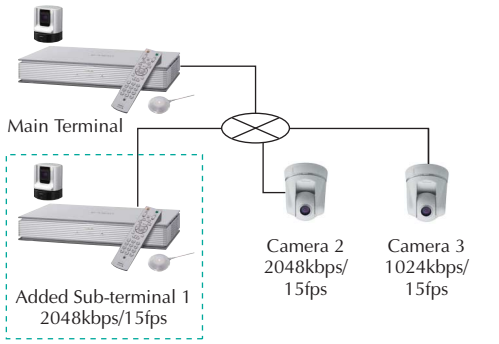
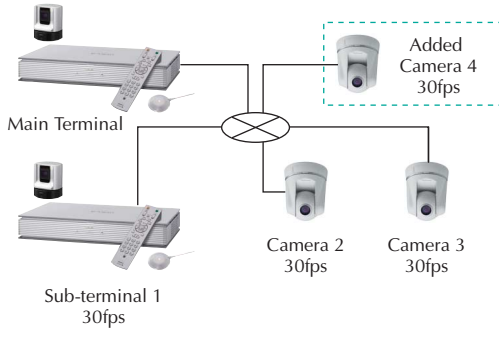
Example	Description	Setting Example/Determined Communication Mode				
1-b-3	 <p> * In this example, the main terminal connects to camera 1 with the administrator authority and camera 2 with the user authority. When the sum of the network camera bit rates (2048kbps + 2048kbps) exceeds the main PCS's LAN Bandwidth (4Mbps) due to the connection of camera 2 *2, the bit rate is changed to the optimum value for camera 1 regardless of the main PCS's network camera settings. The mode for camera 2 is changed to "Voice Only" because user authority access is allowed and capability exchange cannot be performed again. </p>	<p>Settings on Main Terminal (PCS)</p> <p>Communication Setup: LAN Bandwidth: 4Mbps</p> <p>General Setup/Network Camera: Bit Rate: Auto Frame Rate: Auto Mode: Auto Image Size: Auto</p> <p>Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1086 638 1436 947"> <tr> <td data-bbox="1086 638 1182 741">Camera 1</td> <td data-bbox="1182 638 1436 741">Bit rate is changed to the optimum value when connection is made.</td> </tr> <tr> <td data-bbox="1086 741 1182 947">Camera 2</td> <td data-bbox="1182 741 1436 947">Changes to "Voice Only" mode</td> </tr> </table>	Camera 1	Bit rate is changed to the optimum value when connection is made.	Camera 2	Changes to "Voice Only" mode
Camera 1	Bit rate is changed to the optimum value when connection is made.					
Camera 2	Changes to "Voice Only" mode					
2-a-1	 <p> When a communication terminal is connected as a sub-terminal and if the sum of the bit rates of the sub-terminals (512kbps for communication terminal + 1024kbps for camera) does not exceed the main PCS's LAN bandwidth (4Mbps), the current PCS rule is applied to the bit rate regardless of the main PCS's network camera settings. In the example above, the bit rate of camera 2 is automatically adjusted to that of sub-terminal 1. </p>	<p>Settings on Main Terminal (PCS)</p> <p>Communication Setup: LAN Bandwidth: 4Mbps</p> <p>General Setup/Network Camera: Bit Rate: Auto Frame Rate: Auto Mode: Auto Image Size: Auto</p> <p>Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1086 1301 1436 1695"> <tr> <td data-bbox="1086 1301 1182 1435">Terminal 1</td> <td data-bbox="1182 1301 1436 1435">LAN Bandwidth: 512kbps Video Frame: 15fps (No change for any item)</td> </tr> <tr> <td data-bbox="1086 1435 1182 1695">Camera 2</td> <td data-bbox="1182 1435 1436 1695">Bit Rate: Changes from 1024kbps to 512kbps Frame Rate: 15fps (No change) Mode: MPEG4 (No change) Image Size: QQVGA (No change)</td> </tr> </table>	Terminal 1	LAN Bandwidth: 512kbps Video Frame: 15fps (No change for any item)	Camera 2	Bit Rate: Changes from 1024kbps to 512kbps Frame Rate: 15fps (No change) Mode: MPEG4 (No change) Image Size: QQVGA (No change)
Terminal 1	LAN Bandwidth: 512kbps Video Frame: 15fps (No change for any item)					
Camera 2	Bit Rate: Changes from 1024kbps to 512kbps Frame Rate: 15fps (No change) Mode: MPEG4 (No change) Image Size: QQVGA (No change)					

*2: If the network camera bit rate is configured as 2048kbps for both cameras 1 and 2, the sum exceeds the 4Mbps of the PCS's LAN bandwidth because the network camera bit rate does not include audio (G.711 = 64kbps).

Example	Description	Setting Example/Determined Communication Mode						
2-a-2	 <p>When a communication terminal is connected as a sub-terminal and if the sum of the bit rates of the sub-terminals (384kbps for communication terminal + 512kbps for camera) does not exceed the main PCS's LAN bandwidth (1024kbps), the current PCS rule is applied and the main PCS automatically tries to adjust the bit rate of camera 2 to that of sub-terminal 1. In this example, however, the mode for camera 2 is changed to "Voice Only" because user authority access is allowed and capability exchange cannot be performed again.</p>	<p>Settings on Main Terminal (PCS)</p> <p>Communication Setup: LAN Bandwidth: 1024Mbps</p> <p>General Setup/Network Camera: (Disabled even if configured)</p> <p>Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1086 555 1436 936"> <tr> <td data-bbox="1086 555 1182 696">Terminal 1</td> <td data-bbox="1182 555 1436 696">LAN Bandwidth: 512kbps Video Frame: 15fps (No change for any item)</td> </tr> <tr> <td data-bbox="1086 696 1182 936">Camera 2</td> <td data-bbox="1182 696 1436 936">Changes to "Voice Only" mode</td> </tr> </table>	Terminal 1	LAN Bandwidth: 512kbps Video Frame: 15fps (No change for any item)	Camera 2	Changes to "Voice Only" mode		
Terminal 1	LAN Bandwidth: 512kbps Video Frame: 15fps (No change for any item)							
Camera 2	Changes to "Voice Only" mode							
2-a-3	 <p>* In this example, the main terminal connects to camera 2 with the administrator authority and camera 3 with the user authority.</p> <p>When a communication terminal is connected as a sub-terminal and if the sum of the bit rates of the sub-terminals (512kbps for communication terminal + (1024kbps + 512kbps) for cameras) does not exceed the main PCS's LAN bandwidth (4Mbps), the current PCS rule is applied to the bit rate regardless of the main PCS's network camera settings. In this example, the main PCS automatically tries to adjust the bit rates of cameras 2 and 3 to that of sub-terminal 1, but the mode for camera 3 is changed to "Voice Only" because user authority access is allowed and capability exchange cannot be performed again.</p>	<p>Settings on Main Terminal (PCS)</p> <p>Communication Setup: LAN Bandwidth: 4Mbps</p> <p>General Setup/Network Camera: Bit Rate: Auto Frame Rate: Auto Mode: Auto Image Size: Auto</p> <p>Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1086 1263 1436 1789"> <tr> <td data-bbox="1086 1263 1182 1447">Terminal 1</td> <td data-bbox="1182 1263 1436 1447">LAN Bandwidth: 512kbps Video Frame: 15fps (No change for any item)</td> </tr> <tr> <td data-bbox="1086 1447 1182 1711">Camera 2</td> <td data-bbox="1182 1447 1436 1711">Bit Rate: Changes from 1024kbps to 512kbps Frame Rate: 15fps (No change) Mode: H.264 (No change) Image Size: QVGA (No change)</td> </tr> <tr> <td data-bbox="1086 1711 1182 1789">Camera 3</td> <td data-bbox="1182 1711 1436 1789">Changes to "Voice Only" mode</td> </tr> </table>	Terminal 1	LAN Bandwidth: 512kbps Video Frame: 15fps (No change for any item)	Camera 2	Bit Rate: Changes from 1024kbps to 512kbps Frame Rate: 15fps (No change) Mode: H.264 (No change) Image Size: QVGA (No change)	Camera 3	Changes to "Voice Only" mode
Terminal 1	LAN Bandwidth: 512kbps Video Frame: 15fps (No change for any item)							
Camera 2	Bit Rate: Changes from 1024kbps to 512kbps Frame Rate: 15fps (No change) Mode: H.264 (No change) Image Size: QVGA (No change)							
Camera 3	Changes to "Voice Only" mode							

Example	Description	Setting Example/Determined Communication Mode										
2-b-1	 <p>When a communication terminal is connected as a sub-terminal and if the sum of the bit rates of the sub-terminals (2048kbps for communication terminal + 2048kbps for camera) exceeds the main PCS's LAN bandwidth (4Mbps)*3, the bit rate is automatically changed to the optimum value regardless of the main PCS's network camera settings.</p>	<table border="1"> <tr> <td colspan="2" data-bbox="1091 309 1436 338">Settings on Main Terminal (PCS)</td> </tr> <tr> <td colspan="2" data-bbox="1091 353 1436 607"> Communication Setup: LAN Bandwidth: 4Mbps General Setup/Network Camera: Bit Rate: Auto Frame Rate: Auto Mode: Auto Image Size: Auto </td> </tr> <tr> <td colspan="2" data-bbox="1091 622 1436 651">Determined Com. Mode on Sub-terminal</td> </tr> <tr> <td data-bbox="1091 667 1185 734">Terminal 1</td> <td data-bbox="1185 667 1436 734">The bit rate is changed to the optimum value when connection is made.</td> </tr> <tr> <td data-bbox="1091 745 1185 860">Camera 2</td> <td data-bbox="1185 745 1436 860"></td> </tr> </table>	Settings on Main Terminal (PCS)		Communication Setup: LAN Bandwidth: 4Mbps General Setup/Network Camera: Bit Rate: Auto Frame Rate: Auto Mode: Auto Image Size: Auto		Determined Com. Mode on Sub-terminal		Terminal 1	The bit rate is changed to the optimum value when connection is made.	Camera 2	
Settings on Main Terminal (PCS)												
Communication Setup: LAN Bandwidth: 4Mbps General Setup/Network Camera: Bit Rate: Auto Frame Rate: Auto Mode: Auto Image Size: Auto												
Determined Com. Mode on Sub-terminal												
Terminal 1	The bit rate is changed to the optimum value when connection is made.											
Camera 2												
2-b-2	 <p>When a communication terminal is connected as a sub-terminal and if the sum of the bit rates of the sub-terminals (2048kbps for communication terminal + 2048kbps for camera) exceeds the main PCS's LAN bandwidth (4Mbps)*3, the mode for camera 2 is changed to "Voice Only" because user authority access is allowed and capability exchange cannot be performed again.</p>	<table border="1"> <tr> <td colspan="2" data-bbox="1091 882 1436 911">Settings on Main Terminal (PCS)</td> </tr> <tr> <td colspan="2" data-bbox="1091 927 1436 1077"> Communication Setup: LAN Bandwidth: 4Mbps General Setup/Network Camera: (Disabled even if configured) </td> </tr> <tr> <td colspan="2" data-bbox="1091 1093 1436 1122">Determined Com. Mode on Sub-terminal</td> </tr> <tr> <td data-bbox="1091 1137 1185 1263">Terminal 1</td> <td data-bbox="1185 1137 1436 1263">LAN Bandwidth: 2048kbps Video Frame: 15fps (No change for any item)</td> </tr> <tr> <td data-bbox="1091 1274 1185 1429">Camera 2</td> <td data-bbox="1185 1274 1436 1429">Changes to "Voice Only" mode</td> </tr> </table>	Settings on Main Terminal (PCS)		Communication Setup: LAN Bandwidth: 4Mbps General Setup/Network Camera: (Disabled even if configured)		Determined Com. Mode on Sub-terminal		Terminal 1	LAN Bandwidth: 2048kbps Video Frame: 15fps (No change for any item)	Camera 2	Changes to "Voice Only" mode
Settings on Main Terminal (PCS)												
Communication Setup: LAN Bandwidth: 4Mbps General Setup/Network Camera: (Disabled even if configured)												
Determined Com. Mode on Sub-terminal												
Terminal 1	LAN Bandwidth: 2048kbps Video Frame: 15fps (No change for any item)											
Camera 2	Changes to "Voice Only" mode											

*3: If the network camera bit rate is configured as 2048kbps for camera 2, the sum of the bit rates of the sub-terminals (communication terminal and camera) exceeds 4Mbps of the PCS's LAN Bandwidth because the network camera bit rate does not include audio (G.711 = 64kbps).

Example	Description	Setting Example/Determined Communication Mode									
2-b-3	 <p data-bbox="560 678 1062 757">* In this example, the main terminal connects to camera 2 with the administrator authority and camera 3 with the user authority.</p> <p data-bbox="560 775 1062 1025">When the sum of the bit rates of the sub-terminals (2048kbps for communication terminal + (2048kbps + 1024kbps) for cameras) exceeds the main PCS's LAN bandwidth (4Mbps) due to the connection of the sub-terminal, the bit rate is changed to the optimum value for camera 2 regardless of the main PCS's network camera settings, but the mode for camera 3 is changed to "Voice Only" because user authority access is allowed and capability exchange cannot be performed again.</p>	<p data-bbox="1094 309 1428 331">Settings on Main Terminal (PCS)</p> <p data-bbox="1094 353 1428 584">Communication Setup: LAN Bandwidth: 4Mbps</p> <p data-bbox="1094 607 1428 629">General Setup/Network Camera: Bit Rate: Auto Frame Rate: Auto Mode: Auto Image Size: Auto</p> <p data-bbox="1094 651 1428 674">Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1094 674 1428 1032"> <tr> <td data-bbox="1094 674 1182 707">Terminal 1</td> <td data-bbox="1182 674 1428 752" rowspan="2">Bit rate is changed to the optimum value when connection is made.</td> </tr> <tr> <td data-bbox="1094 707 1182 752">Camera 2</td> </tr> <tr> <td data-bbox="1094 775 1182 1032">Camera 3</td> <td data-bbox="1182 775 1428 1032">Changes to "Voice Only" mode</td> </tr> </table>		Terminal 1	Bit rate is changed to the optimum value when connection is made.	Camera 2	Camera 3	Changes to "Voice Only" mode			
Terminal 1	Bit rate is changed to the optimum value when connection is made.										
Camera 2											
Camera 3	Changes to "Voice Only" mode										
3-b	 <p data-bbox="560 1413 1062 1491">* In this example, the main terminal connects to cameras 2 and 4 with the administrator authority and camera 3 with the user authority.</p> <p data-bbox="560 1509 1062 1749">When the frame rate exceeds the main PCS's frame rate limit (30fps x 4) due to the connection of camera 4, the capability exchange of the frame rate is required regardless of whether the administrator or user authority is used. In this example, the main PCS automatically tries to adjust the frame rate of all the sub-terminals to 15fps, but the mode for camera 3 is changed to "Voice Only" because user authority access is allowed and capability exchange cannot be performed.</p>	<p data-bbox="1094 1059 1428 1081">Settings on Main Terminal (PCS)</p> <p data-bbox="1094 1104 1428 1335">Communication Setup: LAN Bandwidth: 4Mbps</p> <p data-bbox="1094 1357 1428 1379">General Setup/Network Camera: Bit Rate: Auto Frame Rate: Auto Mode: Auto Image Size: Auto</p> <p data-bbox="1094 1402 1428 1424">Determined Com. Mode on Sub-terminal</p> <table border="1" data-bbox="1094 1424 1428 1760"> <tr> <td data-bbox="1094 1424 1182 1458">Terminal 1</td> <td data-bbox="1182 1424 1428 1458">Changes from 30fps to 15fps</td> </tr> <tr> <td data-bbox="1094 1458 1182 1503">Camera 2</td> <td data-bbox="1182 1458 1428 1503">Changes from 30fps to 15fps</td> </tr> <tr> <td data-bbox="1094 1503 1182 1592">Camera 3</td> <td data-bbox="1182 1503 1428 1592">Changes to "Voice Only" mode</td> </tr> <tr> <td data-bbox="1094 1592 1182 1760">Camera 4</td> <td data-bbox="1182 1592 1428 1760">Changes from 30fps to 15fps</td> </tr> </table>		Terminal 1	Changes from 30fps to 15fps	Camera 2	Changes from 30fps to 15fps	Camera 3	Changes to "Voice Only" mode	Camera 4	Changes from 30fps to 15fps
Terminal 1	Changes from 30fps to 15fps										
Camera 2	Changes from 30fps to 15fps										
Camera 3	Changes to "Voice Only" mode										
Camera 4	Changes from 30fps to 15fps										

Basic Specifications

Basic Specifications

Target Network Camera (As of December 2007)	Sony SNC-RX550N/ RX550P (software version 2.1) Sony SNC-RZ50N/ RZ50P (software version 2.1) Sony SNC-CS50N/ CS50P (software version 2.1) For the latest information on supported cameras and software versions, contact your Sony sales representative.
Transmission Mode	UDP (Unicast), UDP (Multicast), TCP * UDP (Unicast) is recommended
Image Size *1	320 x 240 (QVGA), 160 x 120 (QQVGA)
Mode *2	H.264, MPEG4 (single codec only)
Audio Codec	G.711
Bit Rate	When using H.264: 32, 64, 128, 256, 384, 512, 768, 1024, 1536 kbps When using MPEG4: 64, 128, 256, 384, 512, 768, 1024, 1536, 2048 kbps
Frame Rate *3	NTSC: 15fps, 30fps PAL: 12fps, 25fps
Type of Connection	Peer-to-peer, multipoint connection*4 Up to 6 points (including the local site) can be connected for multipoint connection with the following configurations: <ul style="list-style-type: none"> · H.323 + network camera · H.320 + network camera · SIP + network camera · MIX MCU (mixture of the above patterns)

*1: 640 x 480 (VGA) is not supported.

*2: H.264, MPEG4 and JPEG dual codec and JPEG single codec are not supported.

*3: Up to 15fps (NTSC) or 12fps (PAL) if the mode is H.264 and the transmission mode is TCP.

*4: Multipoint connection requires optional MCU software for LAN connection.

Multipoint connection for mixed SIP and ISDN environment requires optional SIP software and MCU software for ISDN connection.

Cascade connection is not supported.

SONY