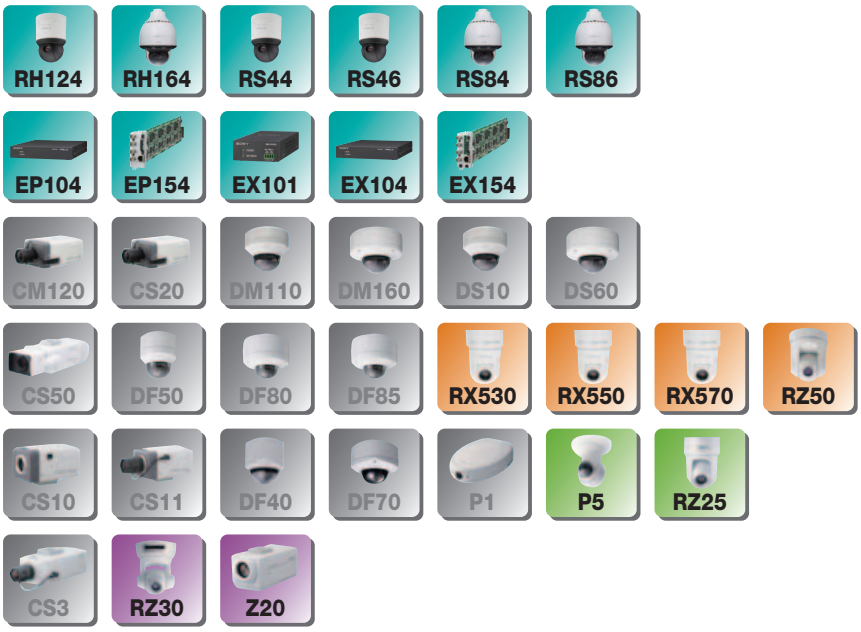
SONY

Application Guide

Pan/Tilt/Zoom/Focus



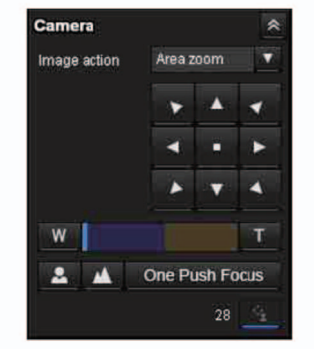
Sony Network Camera
March, 2010
IMA005V2.1
Pan/Tilt/Zoom/Focus

IPELA™

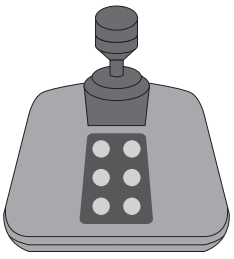
CONTENTS

1. Features

- PTZF is an abbreviation for Pan/Tilt/Zoom/Focus. “Pan” is the horizontal movement of the camera angle, “Tilt” is the vertical. “Zoom” is the adjusting of the focal length of the lens for a close-up look or for wide-angle viewing.
- Many PTZ cameras and Rapid-dome cameras are equipped with “Position Preset*a”, “Guard Tour*b”, “Area Zoom”, “Auto Flip” and “Superimpose” functions.
  - Position Preset: By setting several Pan/Tilt/Zoom preset positions, users are able to see/capture an area quickly and accurately only by selecting the required preset position.
  - Guard Tour: This function is used to set the combination of PTZ preset positions, the moving speed of each PTZ and the duration at each preset position.
  - Auto Flip: This function is used to flip the video view vertically. Good for demonstration of the PTZ camera on the table.
  - Superimpose: The text data is displayed, such as the name of the viewing area and the day/date of the video.
- Pan, tilt and zoom can be operated by joystick, which is common in the CCTV industry, and also can be operated by using a mouse such as our characteristic area zoom function, or using arrow keys on the viewer.



GUI


Joystick


PTZ Camera

*a) For details on how to set up, refer to “Preset/Tour Function Application Guide”.

*b) Guard Tour is called “Preset Tour” in Sony Technical Documents. For details on how to set up, refer to “Preset/Tour Function Application Guide”.

2. Benefits

- Covers a large area: Compare to fixed cameras, PTZ cameras provide wider area coverage as the PTZ can move. This means usage of a PTZ camera will help to minimize the total number of cameras required, thus reducing total cost of coverage per area.
- Guard Tour: Provides a series of video images for each location with zoom capability in the one window.
- Tracks moving objects: The PTZ camera allows an operator to follow a moving object, such as people or cars, by PTZ control. Also, the operator can zoom in and capture details of the targeted object, such as the face or the license plate.

[Guard Tour]

preset 1 preset 2 preset 3

[Tracking]

3. Note

3.1. User's Access Rights

To use this function, set your authentication level to "administrator" unless otherwise noted.

3.2. Protocols Supported By Sony Video Network Station SNT-EX101/EX104/EX154

The SNT-EX101/EX104/EX154 supports the following protocols to control analog cameras(As of Version 1.0):

. Pelco-D

. AD

4. CGI command/Syntax

4.1. Pan/Tilt/Zoom/Focus Move Command

4.1.1. Direct Move

4.1.1.1 Pan/Tilt

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25

Note:
Full and Pan/Tilt users, as well as administrators, can use this command.

CGI	Parameter	Value	Description
ptzf.cgi	Move	left, right, up, down, up-left, up-right, down-left, or down-right	Sets the direction in which the camera moves.
		1 to 24 (low <-> high)	Sets the speed at which the camera moves, in the range of 1 to 24 . **Note:** (for SNC-RH124/RH164/RS44/RS46/RS84/RS86/RZ25) "0" can also be set. If set, the speed is automatically adjusted according to the zoom ratio.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Move=*value,value*

EX101 EX104 EX154

Note:
Full and Pan/Tilt users, as well as administrators, can use this command.

CGI	Parameter	Value	Description
ptzf.cgi	Move	left, right, up, down, up-left, up-right, down-left, or down-right	Sets the direction in which the camera moves.
		1 to 100 (low <-> high)	Sets the speed at which the camera moves, in the range of 1 to 100.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Move=*value,value*

P5

Note:

Full and Pan/Tilt users, as well as administrators, can use this command.

CGI	Parameter	Value	Description
ptzf.cgi	Move	left, right, up, down, up-left, up-right, down-left, or down-right	Sets the direction in which the camera moves.
		1 to 15 (for values of up-left, up-right, down-right, and down-left) 1 to 7 (for values of left, right, up and down) (low <-> high)	Sets the speed at which the camera moves, in the range of 1 to 15 (for values of up-left, up-right, down-right, and down-left) or 1 to 7 (for values of left, right, up and down). **Note:** "0" can also be set. If set, the speed isautomatically adjusted according to the zoom ratio.

CGI Syntax:

http://ip_adr/command/ptzf.cgi?Move=*value,value*

RZ30

Note:

If "User access right" is set to Level 3 or Level 4, there are no access restrictions for using this command.

If "User access right" is set to Level 1 or Level 2, "Access right" has to be any of administrator, Level 2, Level 3 or Level 4.

CGI	Parameter	Value	Description
ptzf.cgi	Visca	81 01 06 01 vv ww 03 01 FF (*1)	Up
		81 01 06 01 vv ww 03 02 FF (*1)	Down
		81 01 06 01 vv ww 01 03 FF (*1)	Left
		81 01 06 01 vv ww 02 03 FF (*1)	Right
		81 01 06 01 vv ww 01 01 FF (*1)	UpLeft
		81 01 06 01 vv ww 02 01 FF (*1)	UpRight
		81 01 06 01 vv ww 01 02 FF (*1)	DownLeft
		81 01 06 01 vv ww 02 02 FF (*1)	DownRight
		81 01 06 01 vv ww 03 03 FF (*1)	Pan/Tilt-Stop

*1: vv=Pan speed (00 – 18), ww=Tilt speed (00 – 14)

CGI Syntax:

http://ip_adr/command/ptzf.cgi?Visca=81010601*nnnnnnnn*FF

4.1.1.2 Zoom

EX101 EX104 EX154 RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25

CGI	Parameter	Value	Description
ptzf.cgi	Move	tele or wide	Sets the camera zoom to tele or wide.
		1 to 8 (low <-> high)	Sets the zoom speed in the range of 1 to 8.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Move=*value,value*

P5

CGI	Parameter	Value	Description
ptzf.cgi	Move	tele or wide	Sets the camera zoom to tele or wide.
		1 to 7 (low <-> high)	Sets the zoom speed in the range of 1 to 7.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Move=*value,value*

RZ30 Z20

CGI	Parameter	Value	Description
ptzf.cgi	Visca	81 01 04 07 02 FF	Tele (Standard)
		81 01 04 07 03 FF	Wide (Standard)
		81 01 04 07 2p FF (*2)	Tele (Variable)
		81 01 04 07 3p FF (*2)	Wide (Variable)
		81 01 04 07 00 FF	Stop

*2: p=Zoom speed 0 (slow) – 7 (fast)

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Visca=81010407*nn*FF

4.1.1.3 Focus

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25

CGI	Parameter	Value	Description
ptzf.cgi	Move	near, far, or onepushhaf	Sets the camera focus to near, far or onepushhaf. Note that "onepushhaf" is enabled only when the "Focus mode" parameter is set to "manual" using "camera.cgi".
		1 to 8	(* Note that this value will be disabled even if set to 1 to 8.)

CGI Syntax:

http://ip_adr/command/ptzf.cgi?Move=*value,value*

EX101 EX104 EX154

CGI	Parameter	Value	Description
ptzf.cgi	Move	near, or far	Sets the camera focus to near or far.
		1 to 8	(* Note that this value will be disabled even if set to 1 to 8.)

CGI Syntax:

http://ip_adr/command/ptzf.cgi?Move=*value,value*

RZ30 Z20

CGI	Parameter	Value	Description
ptzf.cgi	Visca	81 01 04 08 02 FF	Far (Standard)
		81 01 04 08 03 FF	Near (Standard)
		81 01 04 08 2p FF (*3)	Far (Variable)
		81 01 04 08 3p FF (*3)	Near (Variable)
		81 01 04 08 00 FF	Stop
		81 01 04 38 02 FF	Auto Focus
		81 01 04 38 03 FF	Manual Focus
		81 01 04 38 10 FF	Auto/Manual
		81 01 04 18 10 FF	One Push Trigger
		81 01 04 18 02 FF	Infinity
		81 01 04 28 0p 0q 0r 0s FF	Near Limit Setting pqrs: Focus Near Limit Position 1000 (Far) - C000 (Near)

*3: p=Zoom speed 0 (slow) – 7 (fast)

CGI Syntax:

http://ip_adr/command/ptzf.cgi?Visca=810104*nnnnnn...*

4.1.1.4 Stop

EX101 EX104 EX154 RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25

CGI	Parameter	Value	Description
ptzf.cgi	Move	stop	Specifies the mode to be stopped.
		motor, zoom, or focus	

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Move=stop,*value*

P5

CGI	Parameter	Value	Description
ptzf.cgi	Move	stop	Stops the PTZ operation.
		(Any value applicable)	

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Move=stop,*value*

4.1.2. Area Zoom

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 P5 RZ25 RZ30

Note:

- For SNC-P5/RH124/RH164/RS44/RS46/RS84/RS86/RX530/RX550/RX570/RZ25/RZ50:
  Full and Pan/Tilt users, as well as administrators, can use this command.
- For SNC-RZ30:
  If "User access right" is set to Level 3 or Level 4, there are no access restrictions for using this command.
  If "User access right" is set to Level 1 or Level 2, "Access right" has to be any of administrator, or Level 2, Level 3 or Level 4.

It is possible to make the pan and tilt displacement of the camera by using "AreaZoom" parameter which is familiar to the mouse operation. At first regard the center of the shot image as coordinate origin in Figure1. The camera will shot the dashed line area after the command set.

CGI	Parameter	Value	Description
ptzf.cgi	AreaZoom	x	Sets the X distance from the center, in pixels.
		y	Sets the Y distance from the center, in pixels.
		w	Sets the width of the rectangle from the center. Set to "0" for a PT camera.
		h	Sets the height of the rectangle from the center. Set to "0" for a PT camera.
		<codec>	**RH124/RH164/RS44/RS46/RS84/RS86:** Sets the instance to image1,image2 or image3. **RX530/RX550/RX570/RZ50:** Sets the type of codec in use to mpeg4, h264 or jpeg. **P5/RZ25/RZ30:** Do not set this value.

CGI Syntax:
For SNC-RH124/RH164/RS44/RS46/RS84/RS86/RX530/RX550/RX570/RZ50:
http://ip_adr/command/ptzf.cgi?AreaZoom=*value,value,value,value,value*
For SNC-P5/RZ25/RZ30:
http://ip_adr/command/ptzf.cgi?AreaZoom=*value,value,value,value*

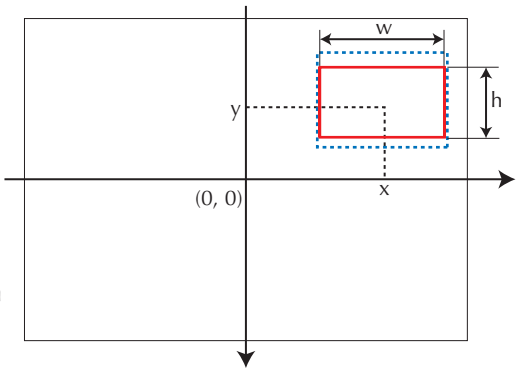


Figure 1: Conceptual diagram for area zoom operation

Note:
- When zooming in to the specified area, the center may shift according to the conditions of the current pan, tilt and zoom position or specified center.
- When the current zoom position is the optical tele area, the zoom action is limited to the optical zoom maximum. If the "AreaZoom" operation is made on condition that the zoom position is set to the optical maximum, the digital zoom action is performed according to the zoom mode.
- When w=0 and h=0 are set in the AreaZoom parameter, no zoom operation is performed except the pan and tilt operation.

4.1.3. Relative Displacement

4.1.3.1 Pan/Tilt/Zoom/Focus Displacement With Respect To Screen

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25* RZ30 (*SNC-RZ25 of ver.1.22 or later)

It is possible to make a relative displacement of the pan, tilt, zoom and focus (focus position values can be set in the SNC-RZ25 only) by using the relative parameter.
When making a relative displacement for the pan or tilt, the distance is normalized with its zoom position.

CGI	Parameter	Value	Description
ptzf.cgi	Relative	aabb	(*4), (*5)
		mpeg4, h264, or jpeg	(For SNC-RX550 of Ver.1.x and SNC-RZ50 of Ver.1.x only.) Sets the type of codec in use.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Relative=*value*

For SNC-RX550 of Ver.1.x and SNC-RZ50 of Ver.1.x only:
http://ip_adr/command/ptzf.cgi?Relative=*value,value*

*4: How to set the value "aa"

Pan/Tilt position

The value "aa" stands for the controlled item and direction such as "Pan position to the right" or "Zoom position to WIDE". It is possible to set the value "aa" as described in the figure and explanation below.

Upper left 07	Upper 08	Upper right 09
Left 04		Right 06
Lower left 01	Lower 02	Lower right 03

Figure 2: Relative parameter "aa"

Zoom position
WIDE: 10
TELE: 11

Focus position (can be set for SNC-RZ25 only)
Near: 12
Far: 13

*5: How to set the value "bb"

The value of "bb" stands for the degree of displacement, which ranges from 01 to 10. The various degrees of pan and zoom displacement are shown in Table 1.

Note: (For SNC-RX550 of Ver.1.x and SNC-RZ50 of Ver.1.x only.)
The displacement is based on the video size of the codec ("mpeg4"/"h264"/"jpeg").

Table 1: Pan/Tilt distance

Value	Distance: Percent of the current video size
01	Around 10%
02	Around 15%
03	Around 20%
04	Around 25%
05	Around 30%
06	Around 40%
07	Around 50%
08	Around 66.7%
09	Around 83.3%
10	Around 100%

Example for SNC-RH124/RH164/RS44/ RS46/RS84/RS86/RX530/RX550/RX570/RZ50

When you want to move the camera 30% to the right for jpeg video:

```
POST /command/ptzf.cgi HTTP/1.1
Host: 192.168.1.1
Connection: Keep-Alive
Cache-Control: no-cache
Content-Length: 13

relative=0605
```

<response>

```
HTTP/1.1 204 No Content
Content-Length: 0
Server: XXXX/X.XX
```

Example for SNC-RZ30

When you want to move the camera 30% to the right for jpeg video:

```
POST /command/ptzf.cgi HTTP/1.1
Host: 192.168.1.1
Connection: Keep-Alive
Cache-Control: no-cache
Content-Length: 13

relative=0605
```

<response>

```
HTTP/1.1 204 No Content
Content-Length: 0
Server: Net EVI/X.XX
```

Example for SNC-RZ25

When you want to move the camera about 30% to the right with respect to the screen.

```
POST /command/ptzf.cgi HTTP/1.1
Host: 192.168.0.120
Content-Length: 13
Cache-Control: no-cache

relative=0605
```

<response>

```
HTTP/1.0 204 No Content
Content-Length: 0
Accept-Ranges: bytes
Connection: Keep-Alive
```

4.1.3.2. Pan/Tilt

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25

CGI	Parameter	Value	Description
ptzf.cgi	RelativePanTilt	<pan position>	Sets the relative pan position according to the camera in use. **RH124/RH164/RS44/RS46/RS84/RS86/ RX530/RX550/RX570:** C040 to 3FC0 **RZ25:** EE4A to11B6 **RZ50:** ECE0 to 1320
		<tilt position>	Sets the relative tilt position according to the camera in use. **RH124/RH164/RS44/RS46/RS84/RS86:** DAD0 to 2530 **RX530/RX550/RX570:** F010 to 0FF0 **RZ25:** F9C0 to 0640 **RZ50:** F988 to 0678
		<speed> 1 to 24 (low <-> high)	Sets the relative pan tilt speed in the range of 1 to 24. **Note:** (For SNC-RZ25 only.) "0" can also be set. If set, the speed is automatically adjusted according to the zoom ratio.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?RelativePanTilt=*value,value,value*

P5

CGI	Parameter	Value	Description
ptzf.cgi	RelativePanTilt	<pan position> FB9C to 0464	Sets the relative pan position according to the camera in use.
		<tilt position> FDCE to 0232	Sets the relative tilt position according to the camera in use.
		<speed> 1 to 7 (low <-> high)	Sets the relative pan tilt speed in the range of 1 to 7. **Note:** "0" can also be set. If set, the speed is automatically adjusted according to the zoom ratio.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?RelativePanTilt=*value,value,value*

RZ30

CGI	Parameter	Value	Description
ptzf.cgi	Visca	81 01 06 03 vv ww 0y 0y 0y 0y 0z 0z 0z 0z FF	vv: Pan speed ww: Tilt speed yyyy: Pan Position (ECE0 - 1320) zzzz: Tilt Position (F988 – 0678)

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Visca=81010603*nnnn*0*n*0*n*0*n*0*n*0*n*0*n*0*n*FF

4.1.3.3. Zoom

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25

CGI	Parameter	Value	Description
ptzf.cgi	RelativeZoom	<zoom position>	Sets the relative zoom position according to the camera in use. **RH124/RH164:** 8001 to 7FFF **RS44/RS46/RS84/RS86/RX530/RX550/ RX570:** 8540 to 7AC0 **RZ25:** C000 to 4000 (Optical only mode) 8540 to 7AC0 (Full mode) **RZ50:** (RZ50N) 8900 to 7700 (RZ50P) 8840 to 77C0

CGI Syntax:
http://ip_adr/command/ptzf.cgi?RelativeZoom=*value*

P5

CGI	Parameter	Value	Description
ptzf.cgi	RelativeZoom	<zoom position> FBF9 to 0407	Sets the relative zoom position according to the camera in use.
		<speed> 1 to 7 (low <-> high)	Sets the relative zoom speed in the range of 1 to 7.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?RelativeZoom=*value,value*

4.1.4. Absolute Displacement

4.1.4.1. Pan/Tilt

Note:
For the pan-tilt coordinate system of each camera, see Appendix 1.

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25

CGI	Parameter	Value	Description
ptzf.cgi	AbsolutePanTilt	<pan position>	Sets the absolute pan position according to the camera in use. **RH124/RH164/RS44/RS46/RS84/RS86/ RX530/RX550/RX570:** E020 to 1FE0 **RZ25:** F725 to 08DB **RZ50:** F670 to 0990
		<tilt position>	Sets the absolute tilt position according to the camera in use. **RH124/RH164/RS44/RS46/RS84/RS86:** F808 to 0AA0 **RX530/RX550/RX570:** F808 to 07F8 **RZ25:** FB50 to 0190 (E-flip off) FE70 to 04B0 (E-flip on) **RZ50:** FCC4 to 033C
		<speed> 1 to 24 (low <-> high)	Sets the absolute pan tilt speed in the range of 1 to 24. **Note:** (For SNC-RZ25 only.) "0" can also be set. If set, the speed is automatically adjusted according to the zoom ratio.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?AbsolutePanTilt=*value,value,value*

P5

CGI	Parameter	Value	Description
ptzf.cgi	AbsolutePanTilt	<pan position> FDCE to 0232	Sets the absolute pan position according to the camera in use.
		<tilt position> FF1F to 0151	Sets the absolute tilt position according to the camera in use.
		<speed> 1 to 7 (low <-> high)	Sets the absolute pan tilt speed in the range of 1 to 7. **Note:** "0" can also be set. If set, the speed is automatically adjusted according to the zoom ratio.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?AbsolutePanTilt=*value,value,value*

RZ30

CGI	Parameter	Value	Description
ptzf.cgi	Visca	81 01 06 02 vv ww 0y 0y 0y 0y 0z 0z 0z 0z FF	vv: Pan speed ww: Tilt speed yyyy: Pan Position (F670 – 0990) zzzz: Tilt Position (FCC4 - 033C)

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Visca= 81010602*nnnn*0*n*0*n*0*n*0*n*0*n*0*n*0*n*FF

4.1.4.2. Zoom

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25

Note:
For zoom ratio and zoom position data mapping of each camera, see Appendix 2.

CGI	Parameter	Value	Description
ptzf.cgi	AbsoluteZoom	<zoom position>	Sets the absolute zoom position according to the zoom method. For optical zoom: 0000 to 4000 For digital zoom: **RH124/RH164:** 4000 to 8C40 **RS44/RS46/RS84/RS86/RX530/RX550/ RX570/RZ25:** 4000 to 7AC0 **RZ50:** (RZ50N) 4000 to 7700 (RZ50P) 4000 to 77C0

CGI Syntax:
http://ip_adr/command/ptzf.cgi?AbsoluteZoom=*value*

P5

CGI	Parameter	Value	Description
ptzf.cgi	AbsoluteZoom	<zoom position> 0000 to 0407	Sets the absolute zoom position according to the zoom method (optical zoom).
		<speed> 1 to 7 (low <-> high)	Sets the absolute zoom speed in the range of 1 to 7.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?AbsoluteZoom=*value,value*

RZ30 Z20

Note:
For the zoom ratio and zoom position data mapping of each camera, see Appendix 2.

CGI	Parameter	Value	Description
ptzf.cgi	Visca	81 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom position Optical: 0000 (wide) – 4000 (tele) Digital: 4000 (x1) – 7700 (x25) NTSC 4000 (x1) – 77C0 (x25) PAL

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Visca= 810104470*n*0*n*0*n*0*n*FF

4.1.4.3. Focus

Note:
For the focus position data mapping of each camera, see Appendix 3.

RX530 RX550 RX570 RZ50 RZ25

CGI	Parameter	Value	Description
ptzf.cgi	AbsoluteFocus	1000 to C000	Sets the absolute focus position in the range of 1000 to C000.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?AbsoluteFocus=*value*

RZ30 Z20

CGI	Parameter	Value	Description
ptzf.cgi	Visca	81 01 04 48 0p 0q 0r 0s FF	pqrs: Focus position 1000 (Far) – C000 (Near)

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Visca=810104480*n*0*n*0*n*0*n*FF

4.1.4.4. Pan/Tilt/Zoom/Focus

Note:
It is possible to leave the value blank for the "Absolute PTZF" parameter.
In this case, the current position is maintained.

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25

CGI	Parameter	Value	Description
ptzf.cgi	AbsolutePTZF	<pan position>	Sets the absolute pan position according to the camera in use. **RH124/RH164/RS44/RS46/RS84/RS86/ RX530/RX550/RX570:** E020 to 1FE0 **RZ25:** F725 to 08DB **RZ50:** F670 to 0990
		<tilt position>	Sets the absolute tilt position according to the camera in use. **RH124/RH164/RS44/RS46/RS84/RS86:** F808 to 0AA0 **RX530/RX550/RX570:** F808 to 07F8 **RZ25:** FB50 to 0190 (E-flip off) FE70 to 04B0 (E-flip on) **RZ50:** FCC4 to 033C
		<zoom position>	Sets the absolute zoom position according to the zoom method. For optical zoom: 0000 to 4000 For digital zoom: **RH124/RH164:** 4000 to 8C40 **RS44/RS46/RS84/RS86/RX530/RX550/ RX570/RZ25:** 4000 to 7AC0 **RZ50:** (RZ50N) 4000 to 7700 (RZ50P) 4000 to 77C0
		<focus position> 1000 to C000	Sets the absolute focus position in the range of 1000 to C000.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?AbsolutePTZF=*value,value,value,value*

P5

CGI	Parameter	Value	Description
ptzf.cgi	AbsolutePTZF	<pan position> FDCE to 0232	Sets the absolute pan position according to the camera in use.
		<tilt position> FF1F to 0151	Sets the absolute tilt position according to the camera in use.
		<zoom position> 0000 to 0407	Sets the absolute zoom position according to the zoom method (optical zoom).
		<focus position> 1000 to C000	Sets the absolute focus position in the range of 1000 to C000.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?AbsolutePTZF=*value,value,value,value*

4.1.5. Continuous Pan/Tilt/Zoom

RH124 RH164 RS44 RS46 RS84 RS86 RX530* RX550* RX570*
(*SNC-RX530/RX550/RX570 of ver.2.3 or later)

Notes:

- Full and Pan/Tilt users, as well as the administrator, can use this command.
- After the camera returns the HTTP response "204 No Content," send the next command. If you do not wait for the response, wait for the target camera command transmission interval time, which can be obtained using the "ContinuousPanTiltZoomInterval" inquiry parameter, before sending the next command. (For a description of the inquiry parameter, refer to the "4.2. Inquiry Command" section.) To stop the camera's PTZ operation, immediately send "ContinuousPanTiltZoom=0,0,0" without waiting for the response to the previous command. In environments other than the LAN environment, the moving command and stopping command might be reversed, causing the camera not to stop. In this case, wait for the HTTP response from the camera to ensure the order.
- Each time a command is sent, end and then restart the session. If you continue to send commands without first disconnecting, the camera may respond less quickly to the pan, tilt and zoom control.

CGI	Parameter	Value	Description
ptzf.cgi	Continuous PanTiltZoom	<pan speed>	You can specify a value in the pan direction in one-step increments ranging from -100 to 100. The actual moving velocity is 120 deg/sec with the zoom position set to the wide-end when 100 is specified as the parameter. The actual velocity varies according to the zoom position. When a positive value is specified, the camera pans to the right. When a negative value is specified, it pans to the left. When 0 is specified, pan operation stops. If both pan speed and tilt speed values are omitted, the current pan/tilt operation is maintained.

(Continued)

CGI	Parameter	Value	Description
ptzf.cgi	Continuous PanTiltZoom	<tilt speed>	You can specify a value in the tilt direction in one-step increments ranging from -100 to 100. The actual moving velocity is 60 deg/sec with the zoom position set to the wide-end when 100 is specified as the parameter. The actual velocity varies according to the zoom position. When a positive value is specified, the camera tilts upwards. When a negative value is specified, it tilts downwards. When 0 is specified, tilt operation stops. If both pan speed and tilt speed values are omitted, the current pan/tilt operation is maintained.
		<zoom speed>	You can specify a value in one-step increments ranging from -100 to 100. When a positive value is specified, the zoom moves in the tele direction. When a negative value is specified, it moves in the wide direction. When 0 is specified, zoom operation stops. If input is omitted, the current operation is maintained.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?ContinuousPanTiltZoom=*value,value,value*
http://ip_adr/command/ptzf.cgi?ContinuousPanTiltZoom=*value,value,*
(in case that zoom speed is omitted)
http://ip_adr/command/ptzf.cgi?ContinuousPanTiltZoom=*,,value*
(in case that pan speed and tilt speed are omitted)

4.1.6. Cancel Setting

RH124 RH164 RS44 RS46 RS84 RS86 P5 RZ25

Note:
Full users, as well as administrators, can use this command.

CGI	Parameter	Value	Description
ptzf.cgi	Cancel	on	Cancels a command that has been issued.

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Cancel=on

4.2. Setting Command

4.2.1. E.flip (or Image flip) Setting

RZ50 RZ25 RZ30* (*SNC-RZ30 of ver.3.0 or later)

CGI	Parameter	Value	Description
camera.cgi	Eflip	on	Set to "on" when you install the camera on a rack or desk.
		off	off Set to "off " when you mount the camera on the ceiling.

CGI Syntax:
http://ip_adr/command/camera.cgi?Eflip=*value*

4.2.2. Limit Pan Tilt Setting

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550 RX570 RZ50 RZ25

CGI	Parameter	Value	Description
ptzf.cgi	LimitPanTilt	<min pan position>	Sets the minimum pan position according to the camera in use. To clear, set 7FFF. **RZ25:** F725 to FFFF **RZ50:** F670 to FFFF **Other than the above models:** E020 to FFFF
		<min tilt position>	Sets the minimum tilt position according to the camera in use. To clear, set 7FFF. **RZ25:** FB50 to FFFF (E-flip off) FE70 to FFFF (E-flip on) **RZ50:** FCC4 to FFFF **Other than the above models:** F808 to FFFF
		<max pan position>	Sets the maximum pan position according to the camera in use. To clear, set 7FFF. **RZ25:** 0001 to 08DB **RZ50:** 0001 to 0990 **Other than the above models:** 0001 to 1FE0
		<max tilt position>	Sets the maximum tilt position according to the camera in use. To clear, set 7FFF. **RH124/RH164/RS44/RS46/RS84/RS86:** 0001 to 0AA0 **RX530/RX550/RX570:** 0001 to 07F8 **RZ25:** 0001 to 0190 (E-flip off) 0001 to 04B0 (E-flip on) **RZ50:** 0001 to 033C

CGI Syntax:
http://ip_adr/command/ptzf.cgi?LimitPanTilt=*value,value,value,value*

RZ30

Note:
Level 4 users, as well as administrators, can use this command.

CGI	Parameter	Value	Description
ptzf.cgi	Visca	81 01 06 07 00 0w 0y 0y 0y 0y 0z 0z 0z 0z FF	Sets the up-right to down-left pan/tilt positions. w: 1 (UpRight) 0 (DownLeft) yyyy: Pan position (F670 - 0990) zzzz: Tilt position (FCC4 - 033C)
		81 01 06 07 01 0w 07 0F 0F 0F 07 0F 0F 0F FF	Clears the up-right to down-left pan/tilt positions. w: 1 (UpRight) 0 (DownLeft)

CGI Syntax:
http://ip_adr/command/ptzf.cgi?Visca=81010607000*n*0*n*0*n*0*n*0*n*0*n*0*n*0*n*FF
http://ip_adr/command/ptzf.cgi?Visca=81010607010*n*070F0F0F070F0F0FFF

4.2.3. Horizontal Tilt Limit Setting

RH124 RH164 RS44 RS46 RS84 RS86

CGI	Parameter	Value	Description
ptzf.cgi	HorizontalTiltLimit	off	Disables the horizontal tilt limit function that restricts the tilting range up to the horizontal position.
		on	Enables the horizontal tilt limit function that restricts the tilting range up to the horizontal position.

CGI Syntax:
http://ip_adr/command/ptzf.cgi? HorizontalTiltLimit=*value*

4.2.4. Camera Control Mode Setting

RH124 RH164 RS44 RS46 RS84 RS86 RX530 RX550* RX570 RZ50 (*SNC-RX550 of ver.1.10 or later)

CGI	Parameter	Value	Description
camera.cgi	PtzfMode	normal	This command is available with the ActiveX viewer. Determines the mode used when operating the 8-direction arrow buttons or the TELE/WIDE button on the ActiveX viewer. When you click the mouse button, the camera starts panning, tilting or zooming operation, and the operation continues while you hold down the mouse button. To stop the operation, release the mouse button.
		step	This command is available with the ActiveX viewer. Determines the mode used when operating the 8-direction arrow buttons or the TELE/WIDE button on the ActiveX viewer. Each time you click the mouse button, the camera moves (panning, tilting or zooming). If you keep the mouse button held down for more than 1 second, the operation mode is temporarily changed to Normal. When you release the mouse button, the camera operation stops and the Step mode is restored.
	RelPanTilt	1 to 10	When you select "step" for "PtzfMode" parameter, "RelPanTilt" becomes enabled. Sets the camera transition level from 1 to 10 when you click the 8-direction arrow button for panning/tilting. Selecting 10 provides the maximum transition level.
	RelZoom	1 to 10	When you select "step" for "PtzfMode" parameter, "RelZoom" becomes enabled. Sets the camera transition level from 1 to 10 when you click or the TELE/WIDE button for zooming. Selecting 10 provides the maximum transition level.

(Continued)

CGI	Parameter	Value	Description
camera.cgi	AutoFlip (For SNC-RH124 /RH164/RS44/ RS46/RS84/ RS86/RX530/ RX550/RX570)	off	Disables the auto flip function that automatically switches the tilt movement of the camera downward to upward when the camera tilts downward to the point where it faces the ground.
		0, 500, or 750	**RH124/RH164/RS44/RS46/RS84/RS86:** Enables the auto flip function and also sets the latency time from when the camera movement tilts completely and stops itself until it restarts tilting. Settable values are 0, 500 or 750 (msec). **RX530/RX550/RX570:** Enables the auto flip function and also sets the latency time from when the camera movement tilts completely and stops itself until it starts panning. Settable values are 0, 500 or 750 (msec).

CGI Syntax:
http://ip_adr/command/camera.cgi?PtzfMode=*value*
http://ip_adr/command/camera.cgi?RelPanTilt=*value*
http://ip_adr/command/camera.cgi?RelZoom=*value*
http://ip_adr/command/camera.cgi?AutoFlip=*value*

CGI	Parameter	Value	Description
camera.cgi	AutoFlip	on	Enables the auto flip function that automatically switches the tilt movement of the camera downward to upward when the camera tilts downward to the point where it faces the ground.
		off	Disables the auto flip function that automatically switches the tilt movement of the camera downward to upward when the camera tilts downward to the point where it faces the ground.

CGI Syntax:
http://ip_adr/command/camera.cgi?AutoFlip=*value*

4.2.5. Camera Control Interface Setting

CGI	Parameter	Value	Description
system.cgi	CameraControlInterface	coaxitron	Sets the camera control interface to Coaxitron interface.
		serial	Sets the camera control interface to Serial interface.

CGI Syntax:
http://ip_adr/command/system.cgi?CameraControlInterface=*value*

EX101 EX104 EX154

CGI	Parameter	Value	Description
serial.cgi	SerType	tcpip	Specify “tcpip” when you use the TCP port to input and output data through the external serial interface.
		normal	Specify “normal” when TCP is not used.
	SerTcpPort	1024 to 65535	Specify a port number corresponding to the TCP port when “SerType“ parameter is set to “tcp”.
	SerStandard	rs485, or rs422	Sets the serial interface standard to RS-485 or RS-422. **Note:** RS-422 is only available on the SNT-EX101.
	SerProtocol	pelco-d	Specify “pelco-d” when you control a camera with Pelco-D protocol.
		ad	Specify “ad” when you control a camera with AD protocol.
	SerDstCamId	1 to 256	Set the connected camera ID from 1 to 256.
	SerBaudRate	2 to 7	Set a baud rate which corresponds to the peripheral device connected to the serial interface. Selectable baud rates are shown below. 2: 1200, 3: 2400, 4:4800, 5:9600, 6:19200, 7:38400(bps)
	SerParityBit	none, odd, or even	Set a parity which corresponds to the peripheral device connected to the serial interface.
	SerCharLen	7, or 8	Set the character length (in bit) which corresponds to the peripheral device connected to the serial interface.
	SerStopBit	1, or 2	Set a stop bit which corresponds to the peripheral device connected to the serial interface.

CGI Syntax:

http://ip_adr/command/serial.cgi?SerType=*value*
http://ip_adr/command/serial.cgi?SerTcpPort=*value*
http://ip_adr/command/serial.cgi?SerStandard=*value*
http://ip_adr/command/serial.cgi?SerProtocol=*value*
http://ip_adr/command/serial.cgi?SerDstCamId=*value*
http://ip_adr/command/serial.cgi?SerBaudRate=*value*
http://ip_adr/command/serial.cgi?SerParityBit=*value*
http://ip_adr/command/serial.cgi?SerCharLen=*value*
http://ip_adr/command/serial.cgi?SerStopBit=*value*

4.3. Inquiry Command

All Applicable Models

CGI Syntax:1

http://ip_adr/command/inquiry.cgi?inq=ptzf
http://ip_adr/command/inquiry.cgi?inq=camera
http://ip_adr/command/inquiry.cgi?inq=system
http://ip_adr/command/inquiry.cgi?inq=serial

Return Value:
ParameterName1=value&ParameterName2=value….

CGI Syntax:2

http://ip_adr/command/inquiry.cgi?inqjs=ptzf
http://ip_adr/command/inquiry.cgi?inqjs=camera
http://ip_adr/command/inquiry.cgi?inqjs=system
http://ip_adr/command/inquiry.cgi?inqjs=serial

Return Values:
var ParameterName1="value"
var ParameterName2="value"
:
:

CGI Syntax:3

For SNC-RZ30/Z20:
http://ip_adr/command/visca-inquiry.cgi?visca=<InquiryCommand>

Inquiry Parameters

Note:
For descriptions of parameters other than those listed below, refer to the "4.1. Setting Command" section.

RH124 RH164 RS44 RS46 RS84 RS86

CGI	Parameter	Value	Description
camera	AutoFlipMode	eflip	Always returns "eflip" as the auto flip mode. (E-flip is a function to display an image upside down.)
	EflipFunc	0	Always returns "0". (Returns "0" when desktop installation is disabled.)
	Eflip	off	Always returns "off" as the e-flip status. (Returns "off" when an image is not inverted with desktop installation).

EP104 EP154 RH124 RH164 RS44 RS46 RS84 RS86

Note:
For Pan/Tilt position range, and zoom position range, see Appendixes 1 and 2.

Inquiry Parameter	Parameter	Value	Description
ptzf	PanTiltMaxVelocity	24	Returns the maximum pan-tilt velocity.
	ZoomMaxVelocity	8	Returns the maximum zoom velocity.
	PanMovementRange	<min position>	Returns the minimum range of pan position.
		<max position>	Returns the maximum range of pan position.
	TiltMovementRange	<min position>	Returns the minimum range of tilt position.
		<max position>	Returns the maximum range of tilt position.
	ZoomMovementRange	<wide end>	Returns the wide end of zoom.
		<optical tele end>	Returns the optical tele end of zoom.
		<digital tele end>	Returns the digital tele end of zoom.
	PanPanoramaRange	<min position>	Returns the minimum display range in the pan direction the SNC panorama creator is using.
		<max position>	Returns the maximum display range in the pan direction the SNC panorama creator is using.
	TiltPanoramaRange	<min position>	Returns the minimum display range in the tilt direction the SNC panorama creator is using.
		<max position>	Returns the maximum display range in the tilt direction the SNC panorama creator is using.

EX101 EX104 EX154

Inquiry Parameter	Parameter	Value	Description
ptzf	PanTiltMaxVelocity	100	Returns the maximum pan-tilt velocity.
	ZoomMaxVelocity	8	Returns the maximum zoom velocity.

RH124 RH164 RS44 RS46 RS84 RS86 RX530* RX550* RX570* (*SNC-RX530/RX550/RX570 of ver.2.3 or later)

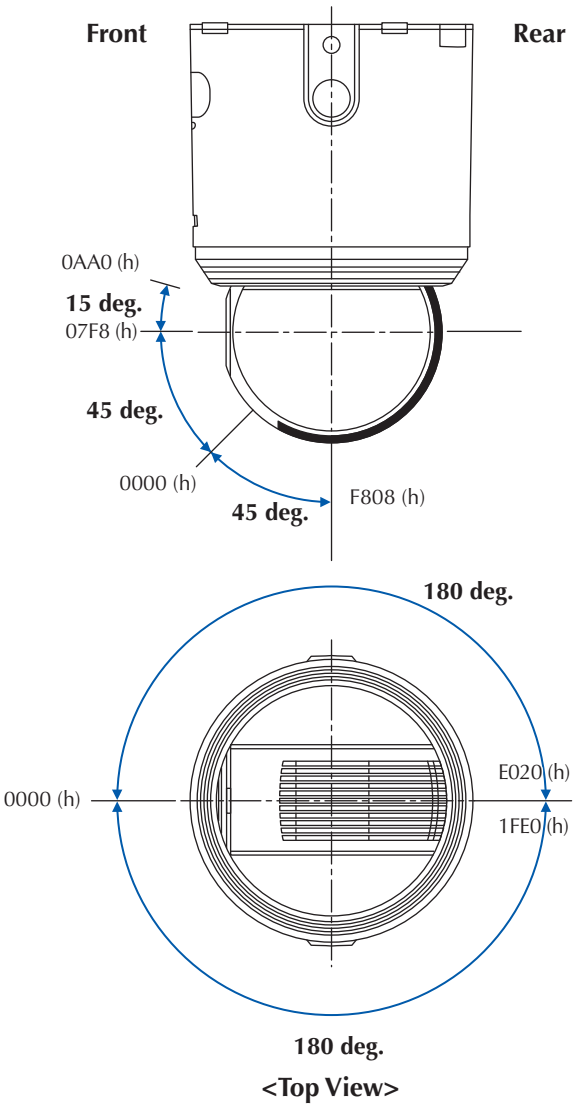
Inquiry Parameter	Parameter	Value	Description
system	ContinuousPanTiltZoomFunc	1	Returns "1" when the continuous pan tilt zoom function is supported. **Note:** (for SNC-RX530/RX550/RX570) If the target camera does not support the function, this parameter itself does not exist.
		0	Returns "0" when the continuous pan tilt zoom function is NOT supported.
	ContinuousPanTiltZoomInterval	<interval time>	Returns a command transmission interval time in ms for the "ContinuousPanTiltZoom" parameter.

5. Applicable Models

- SNC-P5
- SNC-RH124
- SNC-RH164
- SNC-RS44N/RS44P
- SNC-RS46N/RS46P
- SNC-RS84N/RS84P
- SNC-RS86N/RS86P
- SNC-RX530N/RX530P
- SNC-RX550N/RX550P
- SNC-RX570N/RX570P
- SNC-RZ25N/RZ25P
- SNC-RZ30N/RZ30P
- SNC-RZ50N/RZ50P
- SNC-Z20N/Z20P
- SNT-EP104/EP154
- SNT-EX101/EX101E/EX104/EX154

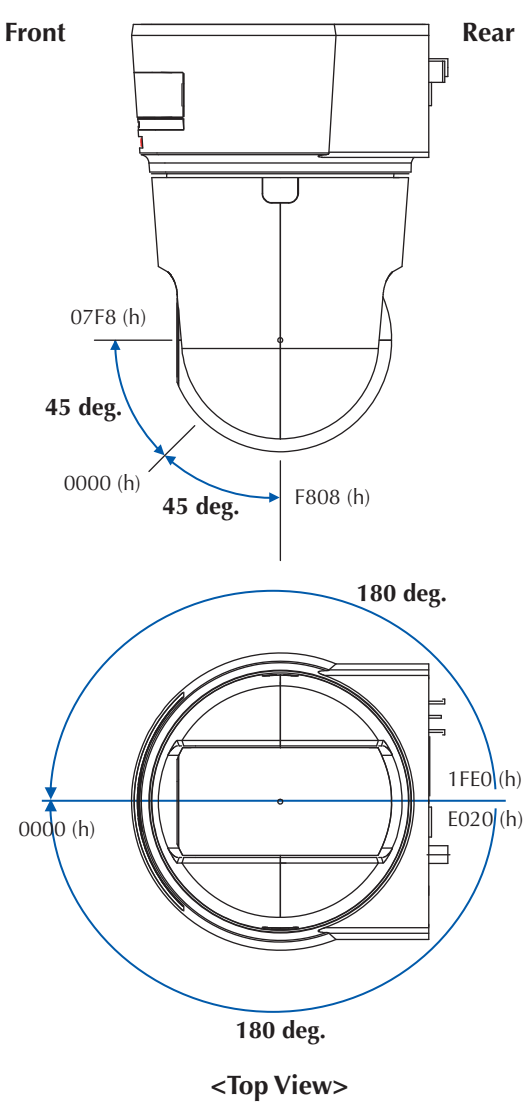
Appendix 1: Pan-Tilt Coordinate System

RH124 RH164 RS44 RS46 RS84 RS86



<Top View>

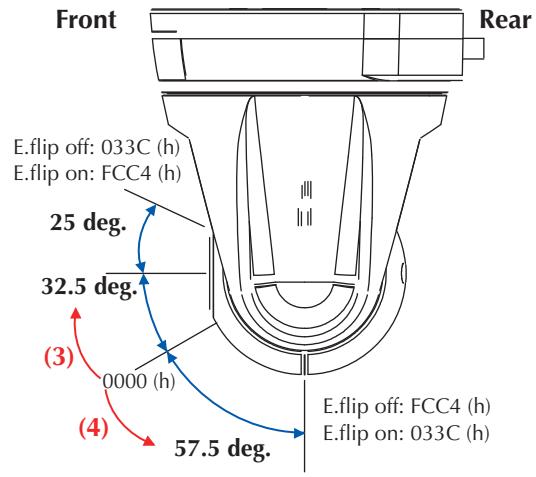
RX530 RX550 RX570

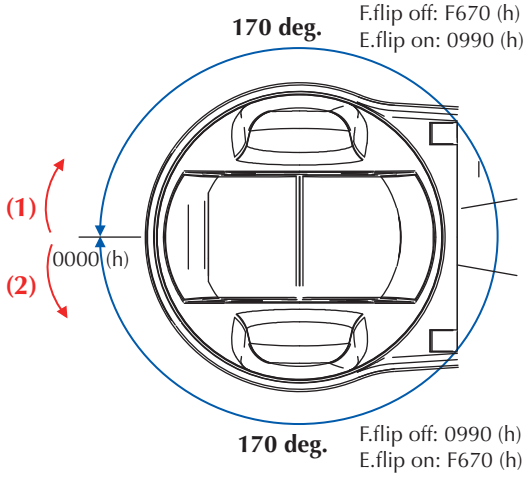


<Top View>

* The values of the pan-tilt coordinate system are the same between indoor and outdoor models.
* The appearance diagram shown above is that of indoor model.

RZ50





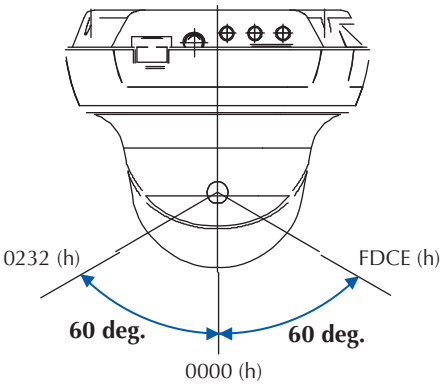
<Top View>

* Difference in moving direction between E.flip on and off

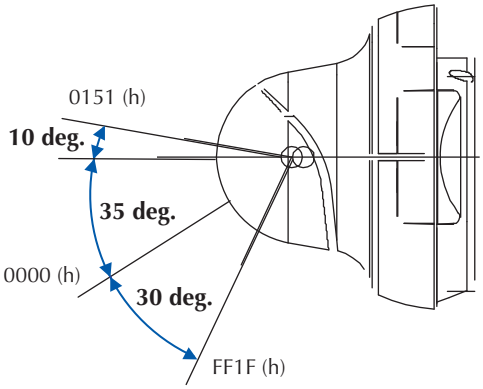
Moving direction with CGI command		left	right	up	down
Moving Direction	E.flip off	(1)	(2)	(3)	(4)
	E.flip on	(2)	(1)	(4)	(3)

P5

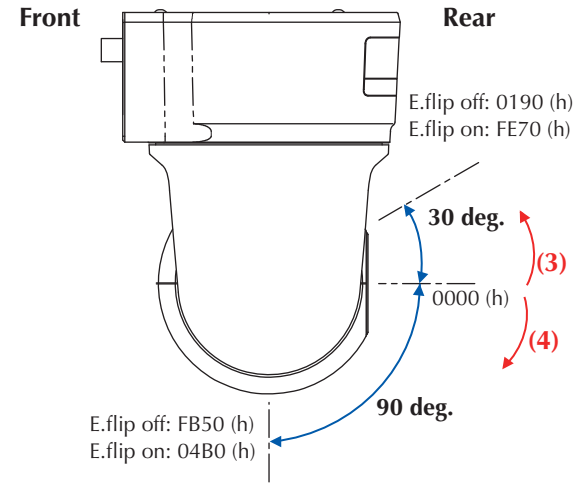
<Top View>

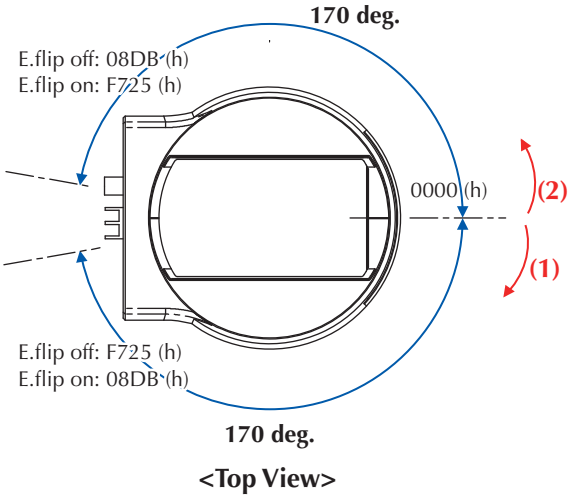


<Side View>



RZ25



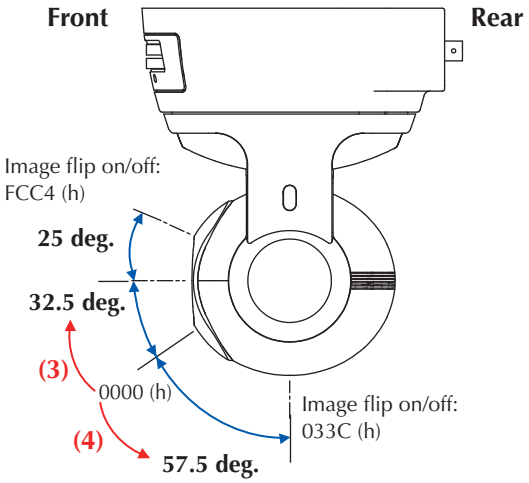


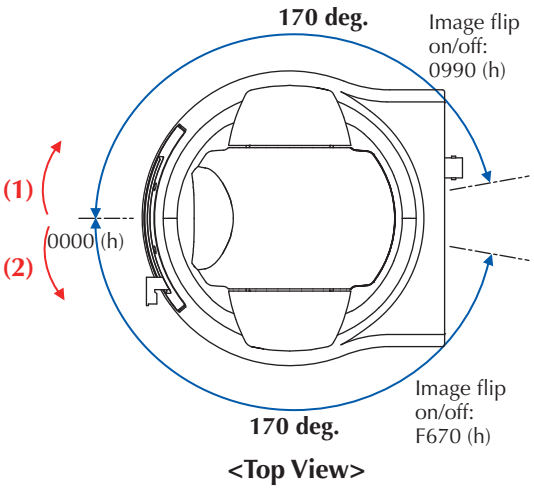
<Top View>

* Difference in moving direction between E.flip on and off

Moving direction with CGI command		left	right	up	down
Moving Direction	E.flip off	(1)	(2)	(3)	(4)
	E.flip on	(2)	(1)	(4)	(3)

RZ30





<Top View>

* Difference in moving direction between Image flip on and off

Moving direction with CGI command		left	right	up	down
Moving Direction	Image flip off	(1)	(2)	(3)	(4)
	Image flip on	(2)	(1)	(4)	(3)

Appendix 2: Zoom Position Mapping

RH124 RH164

Zoom ratio x 10 Lens	Optical zoom position data
x 1	0000
x 1.2	0800
x 1.5	1000
x 1.9	1800
x 2.5	2000
x 3.4	2800
x 4.8	3000
x 6.8	3800
x 10.1	4000

(Expected HD values)

Digital zoom ratio	Digital zoom position data
x 1	4000
x 1.5	5BC0
× 2	69C0
× 4	7E80
× 8	8900
× 12	8C40

RS44 RS84

Zoom ratio x 18 Lens	Optical zoom position data
x 1	0000
x 2	1606
x 3	2151
x 4	2860
x 5	2CB5
x 6	3060
x 7	32D3
x 8	3545
x 9	3727
x 10	38A9
x 11	3A42
x 12	3B4B
x 13	3C85
x 14	3D75
x 15	3E4E
x 16	3EF7
x 17	3FA0
x 18	4000

(Expected values)

Digital zoom ratio	Digital zoom position data
x 1	4000
x 2	6000
× 3	6A80
× 4	7000
× 5	7340
× 6	7540
× 7	76C0
× 8	7800
× 9	7900
× 10	7980
× 11	7A40
× 12	7AC0

RS46 RS86

Zoom ratio x 36 Lens	Optical zoom position data
x 1	0000
x 2	166F
x 3	1FF0
x 4	257D
x 5	2940
x 6	2C02
x 7	2E2B
x 8	2FEE
x 9	316A
x 10	32B2
x 11	33D4
x 12	34D9
x 13	35C8
x 14	36A4
x 15	3773
x 16	3836
x 17	38F0
x 18	39A0
x 19	3A49
x 20	3AE8
x 21	3B7F
x 22	3C0C
x 23	3C8E
x 24	3D06
x 25	3D73
x 26	3DD4
x 27	3E2C
x 28	3E7C
x 29	3EC2
x 30	3F00
x 31	3F38
x 32	3F68
x 33	3F94
x 34	3FBD
x 35	3FDF
x 36	4000

(Expected values)

Digital zoom ratio	Digital zoom position data
x 1	4000
x 2	6000
× 3	6A80
× 4	7000
× 5	7300
× 6	7540
× 7	76C0
× 8	7800
× 9	78C0
× 10	7980
× 11	7A00
× 12	7AC0

RX530 RX550 RX570 RZ50

Zoom ratio x 26 Lens	Optical zoom position data
x 1	0000
x 2	1760
x 3	214C
x 4	2722
x 5	2B22
x 6	2E20
x 7	3080
x 8	3278
x 9	3426
x 10	359E
x 11	36EE
x 12	381C
x 13	392E
x 14	3A26
x 15	3B08
x 16	3BD4
x 17	3C8C
x 18	3D2E
x 19	3DBC
x 20	3E58
x 21	3EA2
x 22	3F00
x 23	3F4E
x 24	3F92
x 25	3FCC
x 26	4000

(Expected values)

(SNC-RX530/RX550/RX570)

Digital zoom ratio	Optical zoom position data
x 1	4000
x 2	6000
x 3	6A80
x 4	7000
x 5	7300
x 6	7540
x 7	76C0
x 8	7800
x 9	78C0
x 10	7980
x 11	7800
x 12	7AC0

(SNC-RZ50)

Digital zoom ratio	Digital zoom position data	
	NTSC	PAL
x 1	4000	4000
x 2	5E00	5E80
× 3	6800	6880
× 4	6D00	6DC0
× 5	7000	70C0
× 6	7200	72C0
× 7	7380	7440
× 8	7480	7540
× 9	7580	7600
× 10	7600	76C0
× 11	76C0	7740
× 12	7700	77C0

RZ25

Zoom ratio x 18 Lens	Optical zoom position data
x 1	0000
x 2	1606
x 3	2151
x 4	2860
x 5	2CB5
x 6	3060
x 7	32D3
x 8	3545
x 9	3727
x 10	38A9
x 11	3A42
x 12	3B4B
x 13	3C85
x 14	3D75
x 15	3E4E
x 16	3EF7
x 17	3FA0
x 18	4000

(Expected values)

Digital zoom ratio	Digital zoom position data
x 1	4000
x 2	6000
× 3	6A80
× 4	7000
× 5	7340
× 6	7540
× 7	76C0
× 8	7800
× 9	7900
× 10	7980
× 11	7A40
× 12	7AC0

RZ30

Zoom ratio x 25 Lens	Optical zoom position data
x 1	0000
x 2	1781
x 3	213B
x 4	2752
x 6	2F03
x 7	315D
x 8	3364
x 9	34FF
x 10	362C
x 11	373D
x 12	386A
x 13	3929
x 14	3A20
x 15	3AFA
x 16	3BBA
x 17	3C5E
x 18	3CCB
x 19	3D70
x 20	3DF8
x 21	3E66
x 22	3ED3
x 23	3F25
x 24	3F93
x 25	4000

(Expected values)

Digital zoom ratio	Digital zoom position data	
	NTSC	PAL
x 1	4000	4000
x 2	5E00	5E80
x 3	6800	6880
x 4	6D00	6DC0
x 5	7000	70C0
x 6	7200	72C0
x 7	7380	7440
x 8	7480	7540
x 9	7580	7600
x 10	7600	76C0
x 11	76C0	7740
x 12	7700	77C0

Z20

Zoom Ratio x 18 Lens	Optical zoom position data
x 1	0000
x 2	1606
x 3	2151
x 4	2860
x 5	2CB5
x 6	3060
x 7	32D3
x 8	3545
x 9	3727
x 10	38A9
x 11	3A42
x 12	3B4B
x 13	3C85
x 14	3D75
x 15	3E4E
x 16	3EF7
x 17	3FA0
x 18	4000

(Expected values)

Digital zoom ratio	Digital zoom position data	
	NTSC	PAL
x 1	4000	4000
x 2	6000	6000
x 3	6A80	6A80
x 4	7000	7000
x 5	7340	7340
x 6	4540	4540
x 7	76C0	76C0
x 8	7800	7800
x 9	7900	7900
x 10	7980	7980
x 11	7A40	7A40
x 12	7AC0	7AC0

Appendix 3: Focus Position Mapping

RH124 RH164

(Expected HD values)

Focus Position	1000 (Far end) – C000 (Near end)	
Focus Near Limit	1000: Over Inf 2000: 4.5 m 3000: 2.0 m 4000: 1.2 m 5000: 80 cm 6000: 45 cm 7000: 38 cm 8000: 15 cm 9000: 7.0 cm A000: 3.8 cm B000: 2.1 cm C000: 1.0 cm	Left listed value maybe shifted by thermal conditions. * The lowest 4 byte is fixed to "00".

RS44 RS84

(Expected values)

Zoom Position	0000 – 4000 – 7AC0 (77C0) (Wide end) (Optical Tele end) (Digital Tele end)	
Focus Position	1000 – C000 (Far end) (Near end)	
Focus Near Limit	1000: Over Inf 2000: 8.0 m 3000: 3.5 m 4000: 2.0 m 5000: 1.4 m 6000: 1 m 7000: 80 cm 8000: 29 cm 9000: 10 cm A000: 4.7 cm B000: 2.3 cm C000: 1.0 cm	Left listed value maybe shifted by thermal conditions. * The lowest 1 byte is fixed to "00".

RS46 RS86

(Expected values)

Zoom Position	0000 – 4000 – 7AC0 (Wide end) (Optical Tele end) (Digital Tele end)	
Focus Position	1000 – C000 (Far end) (Near end)	
Focus Near Limit	1000: Over Inf 2000: 20 m 3000: 10 m 4000: 5 m 5000: 3 m 6000: 2 m 7000: 1.5 m 8000: 32 cm 9000: 9.5 cm A000: 4.5 cm B000: 2 cm C000: 1 cm	Left listed value maybe shifted by thermal conditions. * The lowest 1 byte is fixed to "00".

RX530

(Expected values)

Focus Position	1000 – C000 (Far end) (Near end)	
Focus Near Limit	1000: Over Inf 2000: 8.0 m 3000: 3.5 m 4000: 2.0 m 5000: 1.4 m 6000: 1 m 7000: 80 cm 8000: 29 cm 9000: 10 cm A000: 4.7 cm B000: 2.3 cm C000: 1.0 cm	Left listed value maybe shifted by thermal conditions. * The lowest 1 byte is fixed to "00".

RX570

(Expected values)

Focus Position	1000 – C000 (Far end) (Near end)	
Focus Near Limit	1000: Over Inf 2000: 20 m 3000: 10 m 4000: 5 m 5000: 3 m 6000: 2 m 7000: 1.5 m 8000: 32 cm 9000: 9.5 cm A000: 4.5 cm B000: 2 cm C000: 1 cm	Left listed value maybe shifted by thermal conditions. * The lowest 1 byte is fixed to "00".

RX550 RZ50

(Expected values)

Focus Position	1000 – C000 (Far end) (Near end)	
Focus Near Limit	1000: Over Inf 2000: 7.2 m 3000: 3.3 m 4000: 2.0 m 5000: 1.3 m 6000: 1 m 7000: 80 cm 8000: 40 cm 9000: 20 cm A000: 11 cm B000: 6 cm C000: 3.5 cm	Left listed value maybe shifted by thermal conditions. * The lowest 1 byte is fixed to "00".

RZ25

(Expected values)

Focus Position	1000 (Far end) – C000 (Near end)	
Focus Near Limit	1000: Over Inf 2000: 8.0 m 3000: 3.5 m 4000: 2.0 m 5000: 1.4 m 6000: 1 m 7000: 80 cm 8000: 29 cm 9000: 10 cm A000: 4.7 cm B000: 2.3 cm C000: 1.0 cm	Left listed value maybe shifted by thermal conditions. * The lowest 1 byte is fixed to "00".

RZ30

(Expected values)

Zoom Position	0000 – 4000 – 7700 (77C0) (Wide end) (Optical Tele end) (Digital Tele end)	
Focus Position	1000 – C000 (Far end) (Near end)	
Focus Near Limit	1000: Over Inf 2000: 7.2 m 3000: 3.3 m 4000: 2.0 m 5000: 1.3 m 6000: 1 m 7000: 80 cm 8000: 40 cm 9000: 20 cm A000: 11 cm B000: 6 cm C000: 3.5 cm	* reference value

Z20

(Expected values)

Zoom Position	0000 – 4000 – 7700 (77C0) (Wide end) (Optical Tele end) (Digital Tele end)	
Focus Position	1000 – C000 (Far end) (Near end)	
Focus Near Limit	1000: Over Inf 2000: 8.0 m 3000: 3.5 m 4000: 2.0 m 5000: 1.4 m 6000: 1 m 7000: 80 cm 8000: 29 cm 9000: 10 cm A000: 4.7 cm B000: 2.3 cm C000: 1.0 cm	* reference value