

# HD/4K Integrated Camera Interface Specifications

AW-UE20/AW-HE20  
2022/4/1

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# 1.Introduction

This manual describes the external interface specifications which are applicable when the AW-UE20/AW-HE20 is operated.

## 2. Configuration outline

This manual has the following general configuration.

- ① Overview of the external interface  
It is possible to control the pan, tilt and white balance adjustments.  
It is also possible to acquire the gain and other camera information by initiating queries.  
The various functions are employed for the operations with the camera using HTTP which is the host protocol of TCP.  
For further details, refer to chapter 3 and chapter 4.
- ② Camera information update notification  
The local terminal is notified of the values of the gain and other settings which have been changed at another terminal or other terminals so that it can acquire the camera information.  
This feature is useful when one camera is controlled by a multiple number of terminals, and when the setting for enabling update notifications to be received has been established, the information which has been changed by other terminals can be acquired.  
For further details, refer to chapter 5.
- ③ Camera information batch acquisition  
The camera information can be acquired in batch form. Since there is no need to query each and every camera information item when this feature is used, the feature is useful when all the camera information is required such as at startup.  
For further details, refer to chapter 6.
- ④ Error return  
An error whether ER1, ER2 or ER3 is returned when an error has been generated by a command in ① above or when the AWB result contains an error.  
For further details, refer to chapter 7.
- ⑤ Menu list and command correspondence table  
This table which summarizes AW-UE20/AW-HE20 menu list and commands related to each menu item.  
For further details, refer to chapter 8.
- ⑥ Control and request command  
Describes the specifications of commands used in AW-UE20/AW-HE20.  
For further details, refer to chapter 9.

## 3.Command type

There are two types of external interface command: Pan/Tilt control commands and camera control command.

### 3-1.Pan/Tilt control command

This interface controls the pan tilt head.

Starts with # (0x23), and ends with [CR](0x0d)  
example)Pan stop command

# P 5 0 [CR]

0x23 0x50 0x35 0x30 0x0D

※[CR] is not required for IP communication

Commands which command type is "ptz"(in chapter 9) are for Pan/Tilt control commands

### 3-2.Camera control command

This interface is for the camera lens control and image/color adjustments.

Starts with [STX] (0x02), and ends with [ETX] (0x03)

“.” letter is required before [Data] for camera Control commands.

example)Auto Focus setting

[STX] O A F : 1 [ETX]

0x02 0x4F 0x41 0x46 0x3A 0x31 0x03

※[STX] and [ETX] are not required for IP communication

## 4.Communication method

The camera can be controlled by serial communication and IP communication respectively

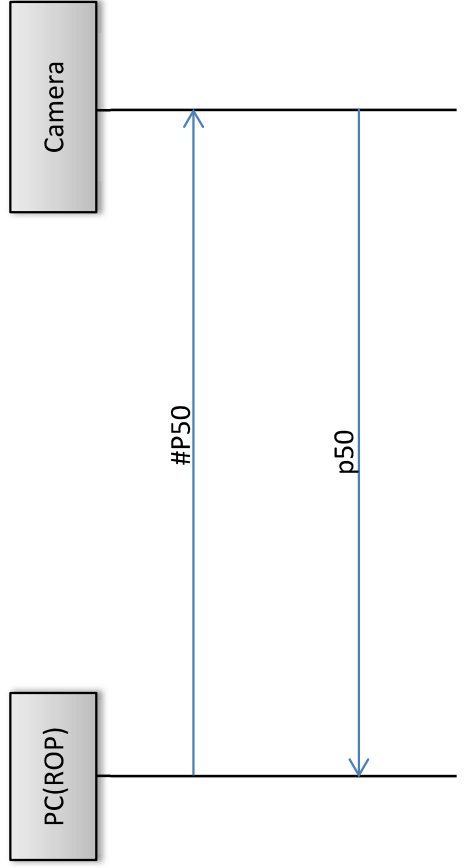
### 4-1.Serial communication

The camera communicates with RS422. The communication specifications are as follows

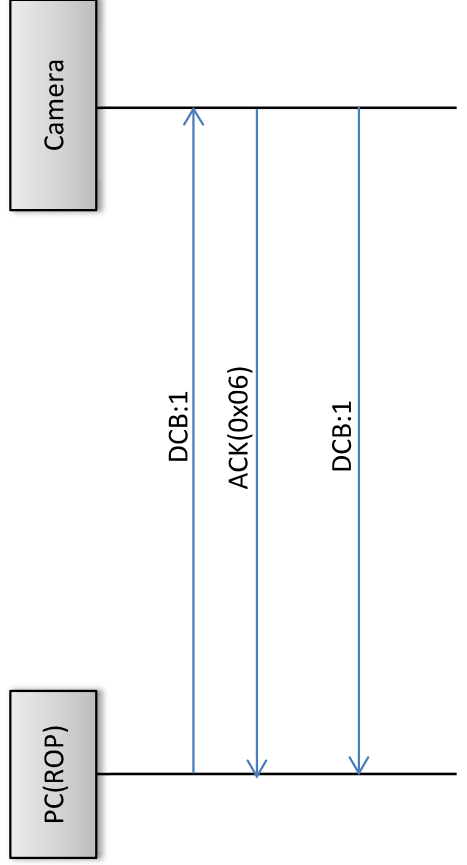
Method	Half Duplex
Communication Speed	9600bps
Data bit	8bit
Stop bit	1bit
Parity	None
Flow control	None

#### ▼ Sequence of serial communication

In case of Pan/Tilt Control command



In case of Camera Control command



#### 【Restrictions】

1. When using the pan-tilt head control commands, send the commands with a gap of 40 ms between each command. Given below is the sequence.
2. Some settings and conditions may restrict the effects of other settings (⊗ including those with exclusive control conditions). See more detail in Chapter 8 for the exclusive control conditions
3. Send the commands which change the settings only at the point in time when the changes are required. (Do not send them at regular intervals.)

## 4-2.IP communication

### In case of Pan/Tilt Control command

#### ▼ Send format

`http://[IP Address]/cgi-bin/aw_ptz?cmd=[Command]&res=[Type]`  
※IP Address...IP address of camera at connection destination  
※Command.....Details given in “Command” column in Chapter 9  
※Type.....Fixed at “1”

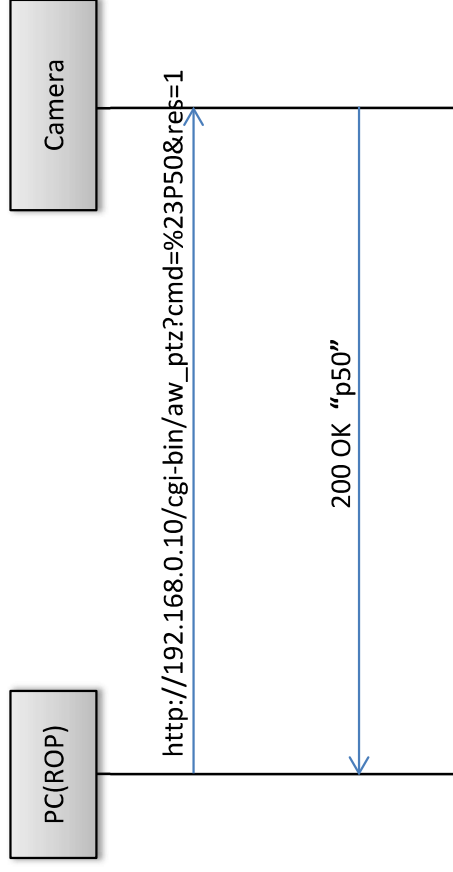
#### ▼ Receive format

200 OK “Command”

※Command...Response value of each command;  
set in the HTTP message body

See more detail in Chapter 7 for the error communication sequence for the transmitted command

#### ▼ Sequence



※Depending on the browser or middleware used, “#” may have to be converted to “%23” by ASCII conversion.

### In case of Camera Control command

#### ▼ Send format

`http://[IP Address]/cgi-bin/aw_cam?cmd=[Command]&res=[Type]`  
※IP Address...IP address of camera at connection destination  
※Command.....Details given in “Command” column in Chapter 9  
※Type.....Fixed at “1”

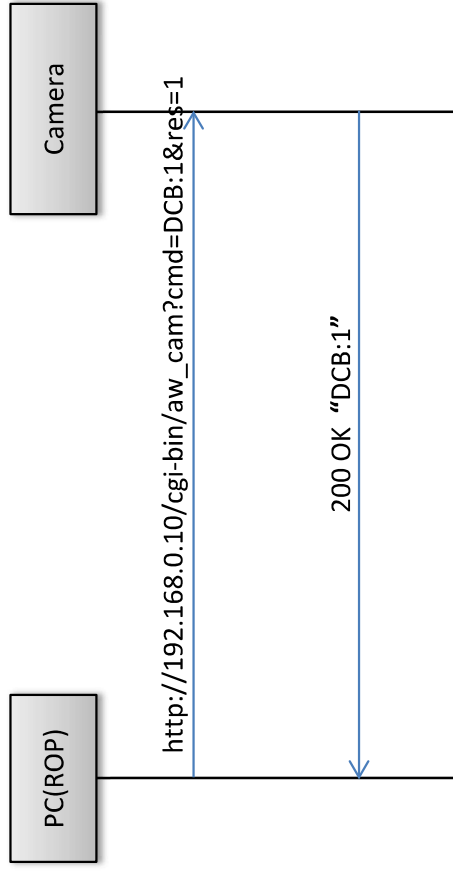
#### ▼ Receive format

200 OK “Command”

※Command...Response value of each command;  
set in the HTTP message body

See more detail in Chapter 7 for the error communication sequence for the transmitted command

#### ▼ Sequence



**【Restrictions】**

1. When using the pan-tilt head control commands, send the commands with a gap of 40 ms between each command. Given below is the sequence.
2. Keep-Alive cannot be set with HTTP connections.  
Connect and disconnect are performed each time a command is sent or received.
3. Some settings and conditions may restrict the effects of other settings (⌘ including those with exclusive control conditions).  
See more detail in Chapter 8 for the exclusive control conditions
4. Send the commands which change the settings only at the point in time when the changes are required. (Do not send them at regular intervals.)



## 5.Update notification

The following restrictions apply to camera operations that are performed using HTTP communication and that have been described in the previous chapters:

- A) Even when a camera setting is changed by one terminal, the other terminals will not know that the setting has been changed unless they send the query command to the camera.
- B) In the case of a preset playback, AWB/ABB execution or other control commands that take time to be processed, it is necessary to wait until the processing is completed for the response.

By sending information autonomously from the camera to the terminals, it is possible to do the following:

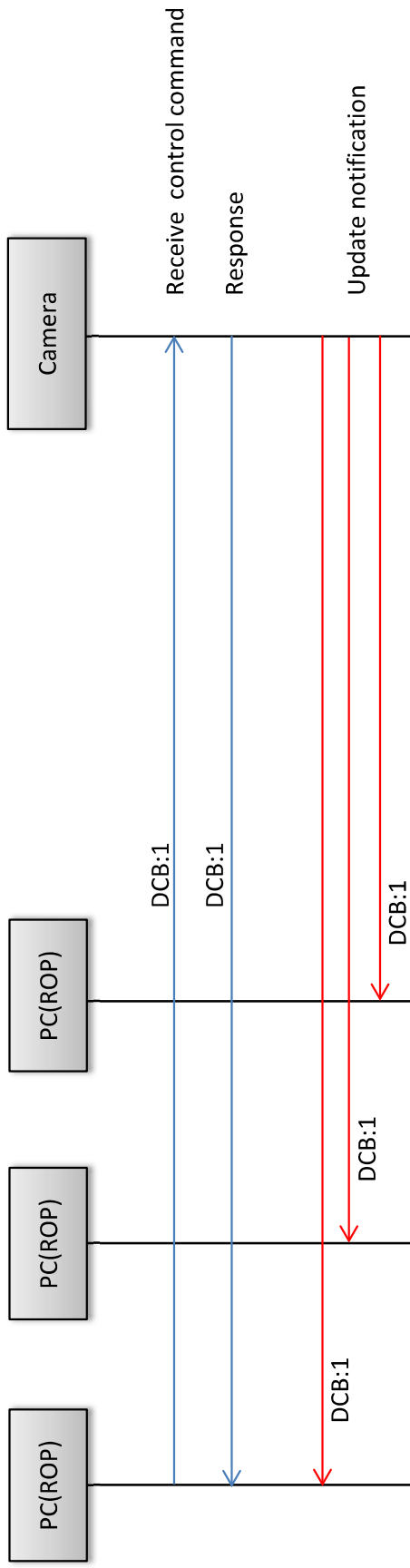
- A) When a camera setting is changed by one terminal, the other terminals are notified of the setting change immediately.
- B) With a control command that takes time to be processed, the HTTP response is returned as soon as the command has been received, and separate notification of the processing result is given as soon as the processing is completed.

These functions are referred to as the camera information update notification function.

This chapter uses the term “update notification” to refer to this function

### 5-1.Update notification sequence

When the settings of the camera have been changed from the local terminal (PC1), the changes are also posted by an update notification separately from the HTTP response to the command.



Some commands are not to be indicated as update notifications. See Chapter:9 for more detail

## 5-2.Data format for update notifications

### ▼IP

The update notification is given to the TCP port on the terminal whose number was specified using the update notification start command by TCP protocol communication.

A breakdown of the data received is given below.

【Receive data】

Reserve (2Byte)	Size (2Byte)	Reserve (4Byte)	Update notification information (Variable length: Max. 504 bytes)	Reserve (24Byte)
--------------------	-----------------	--------------------	----------------------------------------------------------------------	---------------------

The updated information is set in “Update notification information” of the receive data format.

The data received from the camera has a variable length.

The size of the update notification information is the value obtained by subtracting 8 bytes from the “Size” area setting.

- “Update notification information” data length = “Size” — 8 bytes

【Update notification information format】

[CR][LF][ Command response format ][CR][LF]

※ [CR]: 0x0d, [LF]: 0x0a

ex1) Power: On

[CR][LF]p1[CR][LF]

ex2) Color bar: On

[CR][LF]DCB:1[CR][LF]

### ▼Serial

No update notification

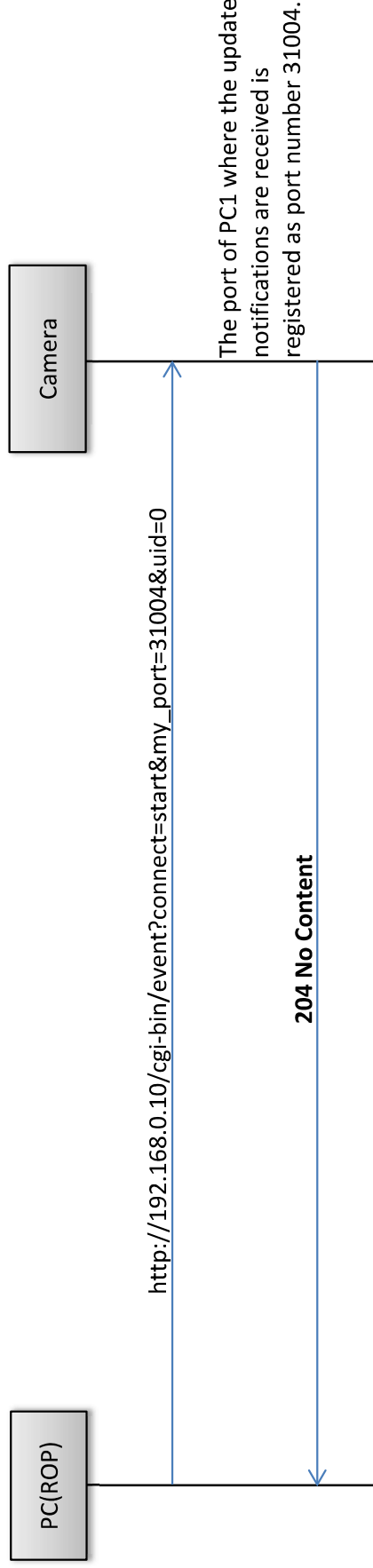
### 5-3.Procedure of start/end of the update notifications reception

To receive an update notification via IP, you must perform the update notification reception start process in advance.  
At a time like this, the number of the TCP port on the terminal for receiving the update notification (having the update notification sent) is specified.

- ① Update notification receive start step  
example) When reception is to be started with "192.168.0.10" used as the IP address of the camera  
`http://192.168.0.10/cgi-bin/event?connect=start&my_port=31004&uid=0`  
※ my\_port ... Number of the TCP port on the terminal (any port)

#### 【Update notification receive start sequence】

The update notification receive start command is sent from the terminal where the update notifications are to be received.  
"204 No Content" is returned from the camera which has received the command.



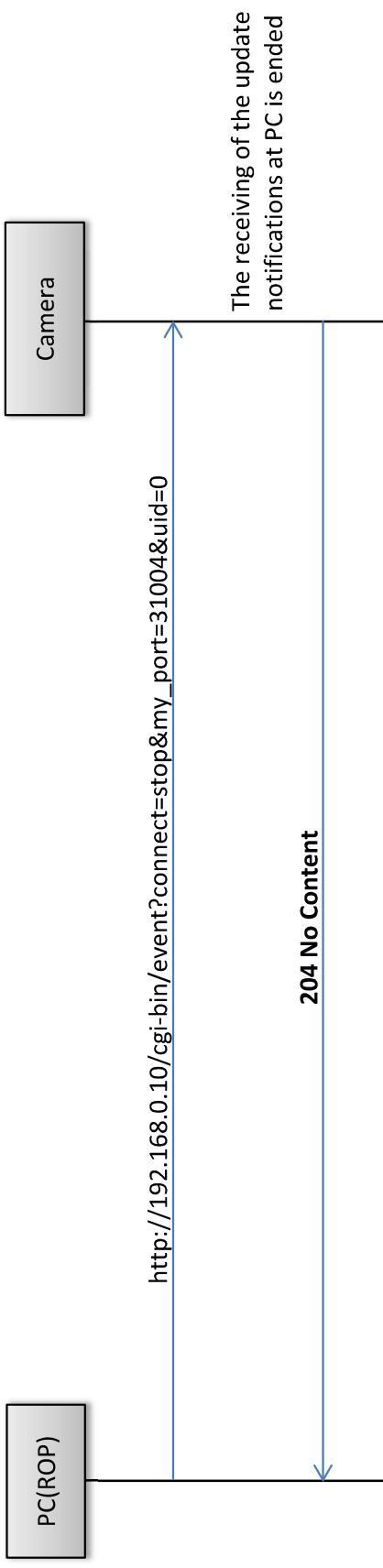
#### 【Caution】

Proceed with the update notification receive start step when communication has been cut off because the LAN cable has been disconnected, for example.

- ② Update notification receive end step  
To close the application of the client, the update notification receive end step must be taken without fail.  
example) When reception is to be ended with "192.168.0.10" used as the IP address of the camera  
`http://192.168.0.10/cgi-bin/event?connect=stop&my_port=31004&uid=0`  
※ my\_port ... Number of the TCP port on the terminal

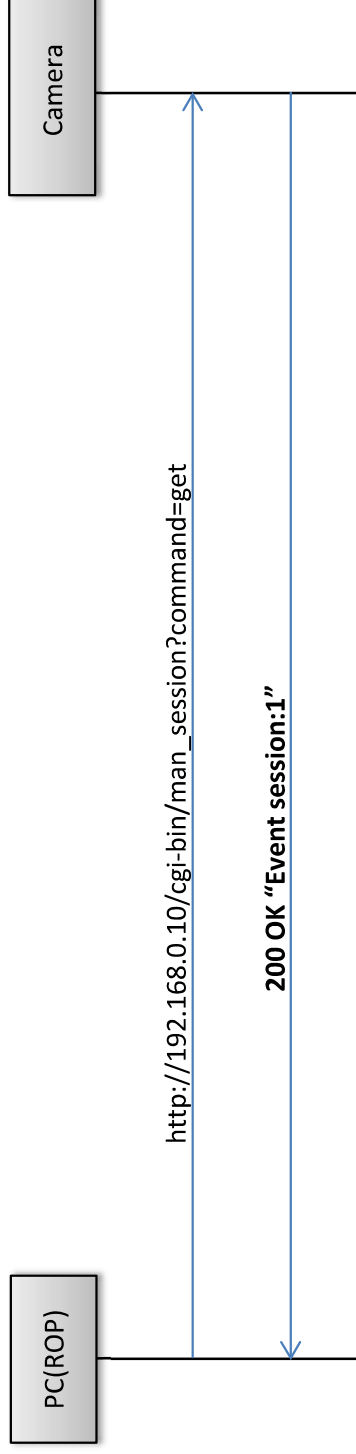
**【Update notification receive end sequence】**

The update notification receive end command is sent from the terminal which has received the update notifications.  
“204 No Content” is returned from the camera which received the command.



**③ Registered number of update notifications**

You can query the number of external devices (RP remote controller etc.) connected to the camera with the following command.  
The number of connected device increases with the procedure to start receiving update notifications and decreases the procedure to start receiving update notifications. The number of connected device also decreases when it can not communicate with the device.  
Number of terminals which can receive update notifications at the same time: 5  
When the remote camera controller is connected, it is counted as one unit.  
example) When the IP address of the camera is “192.168.0.10” and you want to request registered number.  
`http://192.168.0.10/cgi-bin/man_session?command=get`



## 6.Special sequences

Update notifications are sometimes sent at times other than when the settings or statuses of the camera have been changed. Some cases are presented below.

It is assumed that the update notification start command has been sent to all the terminals in the sequence and that the terminals can receive the update notifications from the camera.

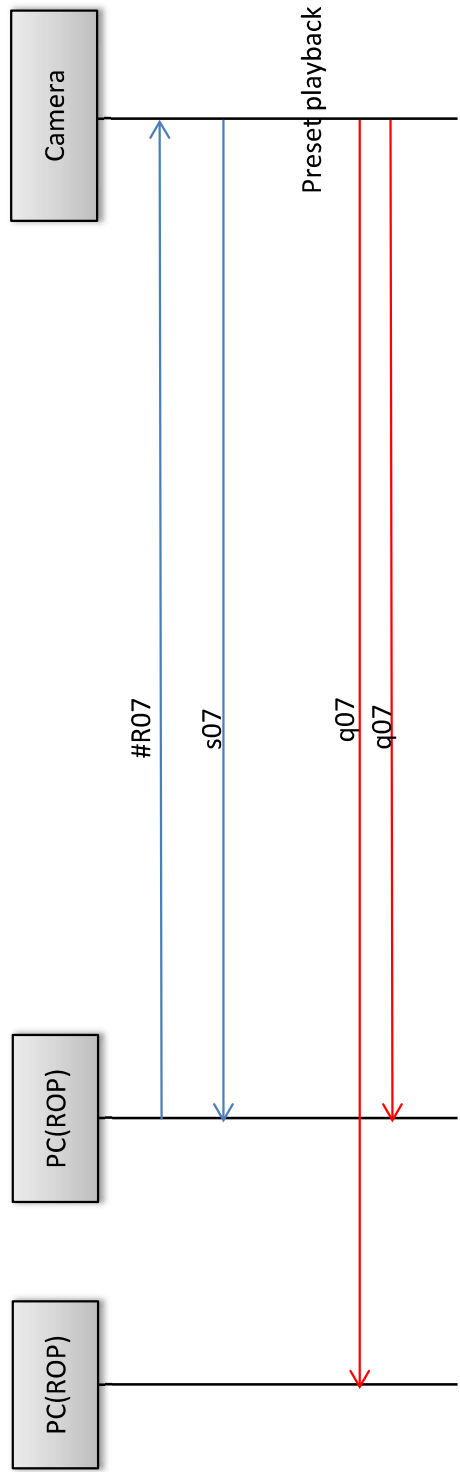
### 6-1.Preset playback

This command sends the preset playback completion notification as an update notification when preset playback in the camera has been completed.

Notification	Remarks
q[Data]	Number of the preset which was played back - 1

#### 【Preset playback sequence】

This is the sequence in which preset number 08 is played back. As soon as the preset playback command is received, “s07” is returned as the HTTP response, and as soon as the playback is completed after this, “q07” is posted separately as the update notification.



## 6-2.Lens Information

Notification is sent in a 300ms cycle when “On: Information is posted” has been set for the lens information notification On/Off control command

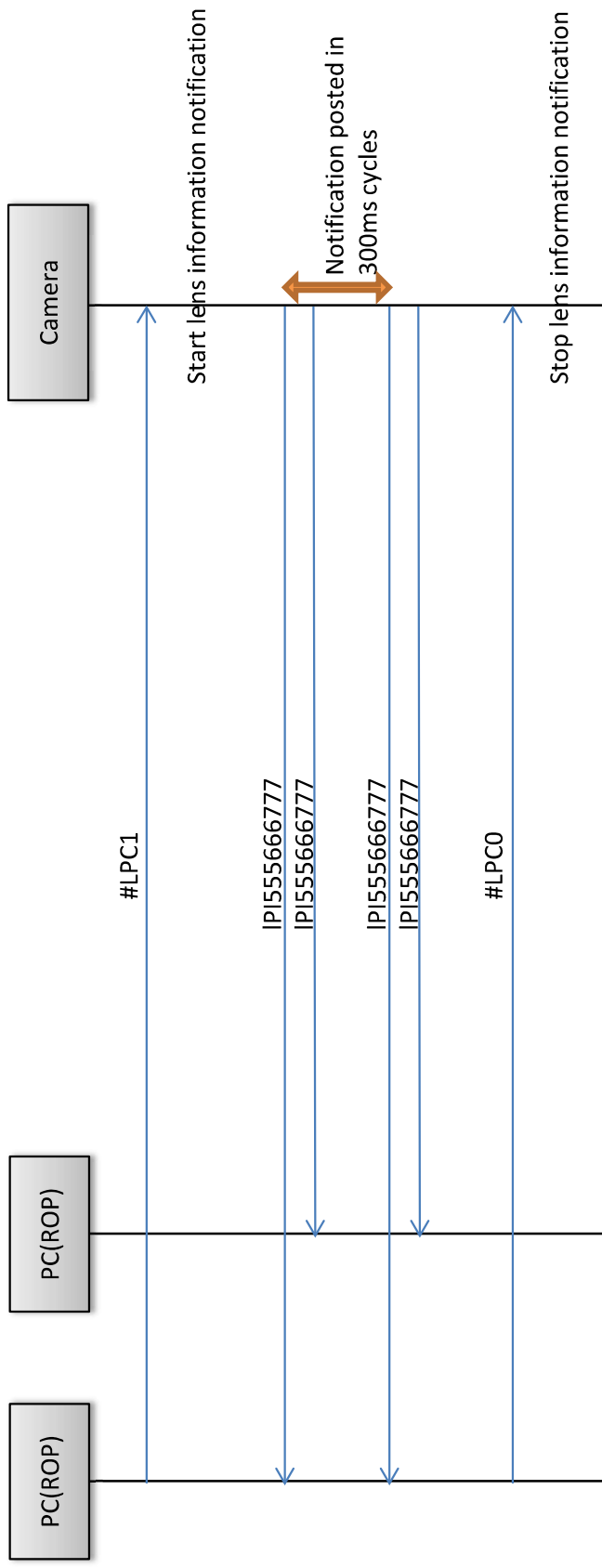
Notification	Lens information
LPI[ZZZ][FFF][III]	ZZZ Zoom position FFF Focus position III Iris position (Expressed in 3 digits each)

**【Sequence when lens information is changed】**

Start lens information notification when the camera receive lens information On command (#LPC1).

When the camera detects changes in the lens information, the changed lens information is sent to the terminals, and terminals PC1 and PC2 receive this information.

Stop lens information notification when the camera receive lens information Off command (#LPC0).



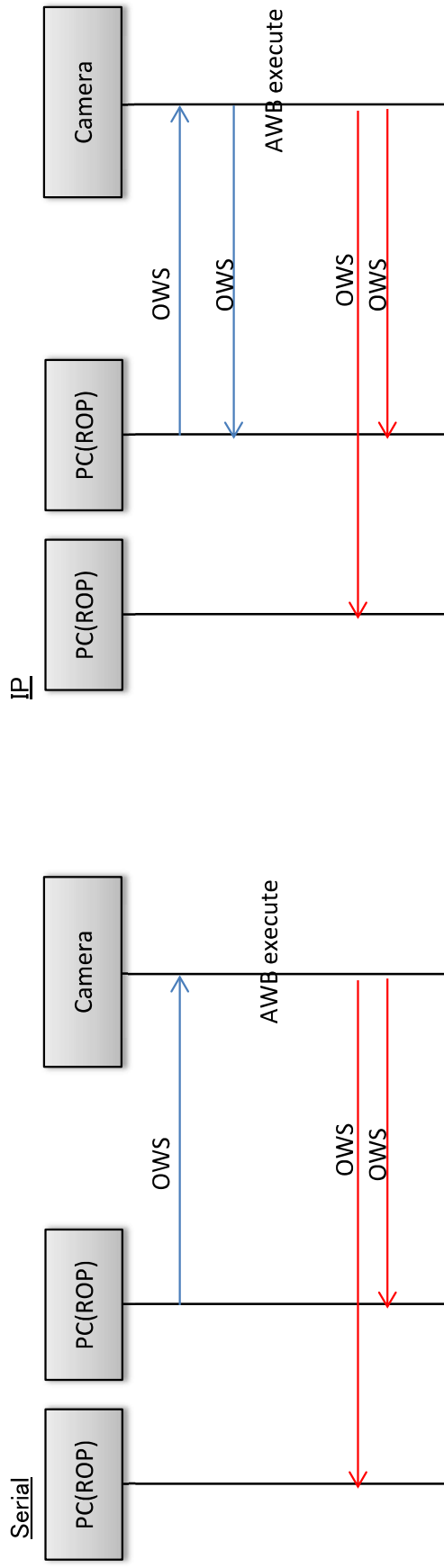
### 6-3.AWB/ABB execution

This command sends the execution results as an update notification when execution of AWB/ABB has been completed by the camera.

Notification	Remarks
OWS	AWB execution successful
OAS	ABB execution successful

#### 【AWB execution sequence】

As soon as the AWB/ABB execution command is received, return response, and as soon as the AWB execution is completed, “OWS” is posted separately as the update notification.



#### 6-4. Camera information batch acquisition

All the information of the camera can be acquired together as a batch.

**【Command format】**

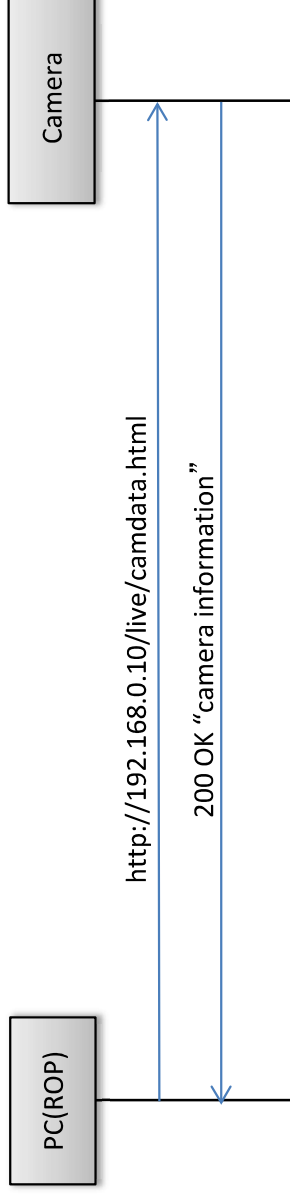
[send]  
http://[IP Address]/live/camdata.html

[receive]

200 OK “Camera information”

See chapter 9 for detail of camera information

**【Sequence】**





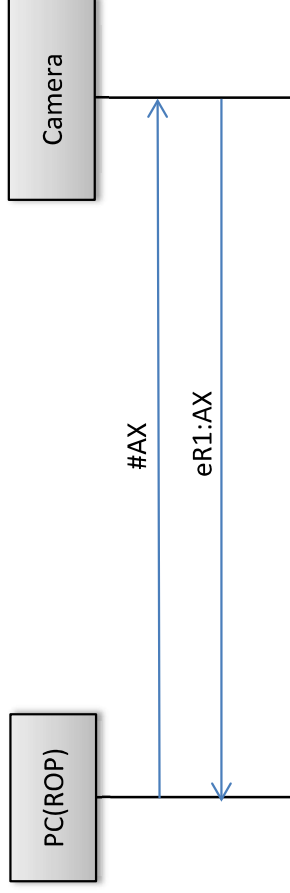
## 7. Error return

The three errors ER1, ER2 and ER3 below are returned in response to control or query commands by the camera.

### In the case of Pan/Tilt control command

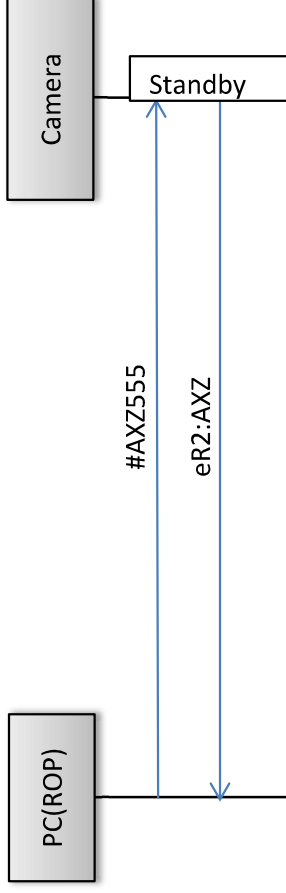
#### ▼ER1 (unsupported command)

This error is generated when a command which is not supported by the camera has been received by the camera (example) When the non-existent "#AX" command is executed for the camera



#### ▼ER2 (busy status)

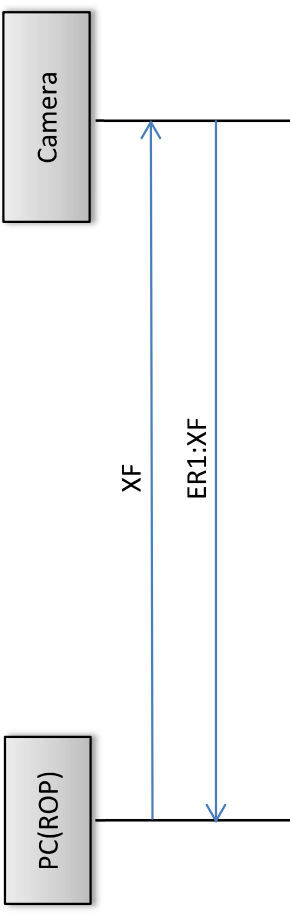
This error is generated during Standby (Power Off) or at other times when the camera is in the busy status.



### In the case of Camera control command

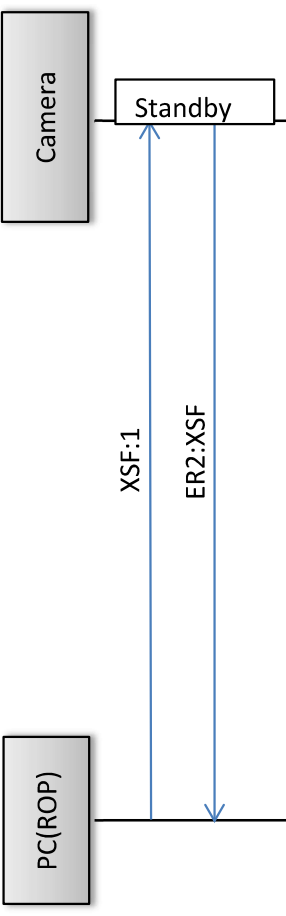
#### ▼ER1 (unsupported command)

This error is generated when a command which is not supported by the camera has been received by the camera (example) When the non-existent "XF" command is executed for the camera



#### ▼ER2 (busy status)

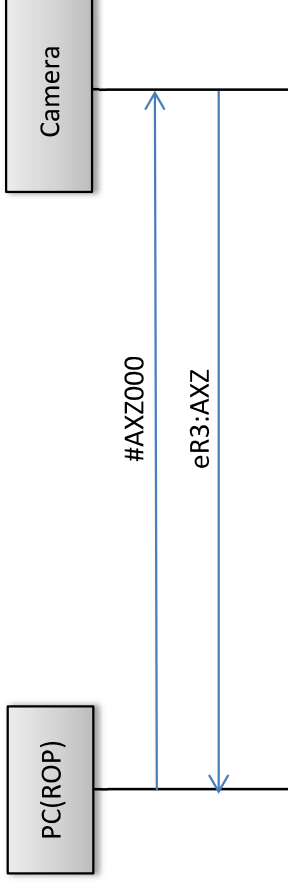
This error is generated during Standby (Power Off) or at other times when the camera is in the busy status.



▼ER3 (outside acceptable range)

This error is generated when the data value of a command is outside the acceptable range.

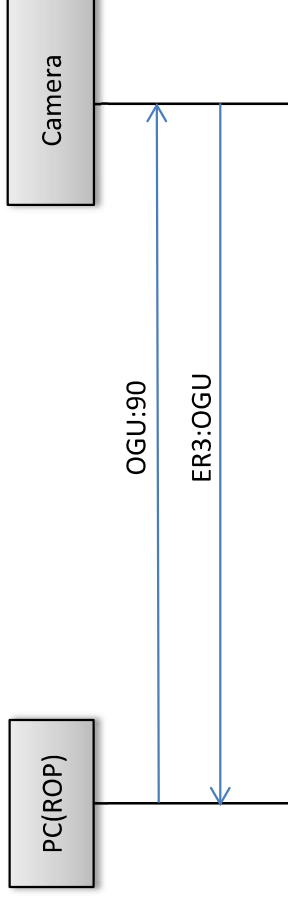
example) The "#AXZ" command was executed with a data value of "000" which is outside the acceptable range.



▼ER3 (outside acceptable range)

This error is generated when the data value of a command is outside the acceptable range.

example) The "OGU (gain setting)" command was executed with a data value of "90" which is outside the acceptable range.



## 8.AW-UE20/AW-HE20 Menu-Command Correspondance Table

Menu	Command	Remarks
Camera		
Scene	XSF	
Brightness		
Picture Level	OSD:48	Not available when Iris Mode is Manual.
AGC MaxGain	OSD:69	
Slow Shutter	OSJ:80	Available when Scene is Full Auto.
Iris Mode	ORS #D3	Available when Scene is Scene1/Scene2.
Shutter Mode	OSJ:03	Available when Scene is Scene1/Scene2.
Step/Synchro	OSJ:04 OSJ:05 OSJ:06 OSJ:07 OSJ:08 OSJ:09	Available when Shutter Mode is Step/Synchro.
Gain	OGU	Available when Scene is Scene1/Scene2.
AGC Max Gain	OSD:69	
Frame Mix	OSA:65	Available when Scene is Scene1/Scene2 and Shutter Mode is Off.
Auto F.Mix Max Gain	OSE:74	Available when Scene is Scene1/Scene2.
Picture		
Chroma Level	OCG	
White Balance Mode	OAW OWS OAS	
R Gain	OSG:39	Available when White Balance Mode is AWB A/AWB B.
B Gain	OSG:3A	Available when White Balance Mode is AWB A/AWB B.
Pedestal	OSJ:0F	
Detail	ODT	
Contrast	OSD:50	
DRS	OSE:33	
Back Light COMP.	OSE:73	
DNR	OSD:3A	
System		
Priority Mode	-	There is no corresponding AW command. Can be set by CGI command.
Frequency	OSE:77	
Format	OSA:87	
Install Position	#INS	
Preset Speed Table	#PST	
Preset Speed	#UPVS	
Preset Scope	OSE:71	
Speed With Zoom Position	#SWZ	
Focus Mode	OAF #D1	
Focus Adjust With PTZ.	OAZ	Available when Focus Mode is Manual.
Zoom Mode	OSE:70 OSD:B3	
Max Digital Zoom	OSE:7A	Available when Zoom Mode is D. Zoom.
Digital Extender	OSJ:4E	Available when Zoom Mode is Opt. Zoom.
Tally	#TAE #DA #TAA	
Status Lamp	#LMP	
Wireless ID	#RID #WLC	
OSD off with Tally	OSE:75	
Color Bar	DCB	
Audio		
Input Type	OSA:D1	Available when Focus Audio is On.
Volume Level	OSA:D5	Available when Focus Audio is On.
Plugin Power	OSA:D2	Available when Focus Audio is On.
Serial Com. Protocol	OVP:02	
Connector Select	OVP:03	Available when Focus Serial Com. Protocol is Standard.
Baud Rate	OVP:04	Available when Focus Serial Com. Protocol is Standard.
Camera Address	OVP:05	Available when Focus Connector Select is RS232C.
Maintenance		
Langage	OSJ:82	
FW Version	QSV	

Commands not linked to menus			
MENU制御			
	<a href="#">MENU(MENU ON/OFF)</a>	<a href="#">DUS</a>	
	<a href="#">MENU SW(MENU Cancel)</a>	<a href="#">DPG</a>	Available when Menu is On
	<a href="#">ITEM SW(ENTER Botton)</a>	<a href="#">DIT</a>	Available when Menu is On
	<a href="#">YES SW(UP Botton)</a>	<a href="#">DUP</a>	Available when Menu is On
	<a href="#">NO SW(Down Botton)</a>	<a href="#">DDW</a>	Available when Menu is On
	<a href="#">RIGHT SW(Right Botton)</a>	<a href="#">DRT</a>	Available when Menu is On
	<a href="#">LEFT SW(Left Botton)</a>	<a href="#">DLT</a>	Available when Menu is On
Pan/Tilt			
	<a href="#">Pan/Tilt Absolute Position Control</a>	<a href="#">#APC</a>	
	<a href="#">PAN SPEED</a>	<a href="#">#P</a>	
	<a href="#">TILT SPEED</a>	<a href="#">#T</a>	
	<a href="#">Pan Tilt Speed Control</a>	<a href="#">#PTS</a>	
	<a href="#">Limitation Control</a>	<a href="#">#LC</a>	
Lens			
	<a href="#">Zoom Position Control</a>	<a href="#">#AXZ</a>	
	<a href="#">Request Zoom Position</a>	<a href="#">#GZ</a>	
	<a href="#">Zoom Speed</a>	<a href="#">#Z</a>	
	<a href="#">D-Zoom Magnification</a>	<a href="#">OSE:76</a>	
	<a href="#">Focus Position Control</a>	<a href="#">#AXF</a>	Available when Focus Mode is Manual
	<a href="#">Request Focus Position</a>	<a href="#">#GF</a>	
	<a href="#">Focus Speed Control</a>	<a href="#">#F</a>	Available when Focus Mode is Manual
	<a href="#">One Shot Focus</a>	<a href="#">OSE:69</a>	Available when Focus Mode is Manual
	<a href="#">Iris Control</a>	<a href="#">#AXI</a> <a href="#">#I</a> <a href="#">ORV</a>	Available when Iris Mode is Manual
	<a href="#">Request Iris Position</a>	<a href="#">#GI</a>	
	<a href="#">Request Iris F No.</a>	<a href="#">QIF</a>	
	<a href="#">Iris Follow</a>	<a href="#">QSD:4F</a>	
	<a href="#">Lens Position Information Control</a>	<a href="#">#LPC</a>	
	<a href="#">Lens Position Information</a>	<a href="#">#LPI</a>	
Preset			
	<a href="#">Recall Preset Memory</a>	<a href="#">#R</a>	
	<a href="#">Save Preset Memory</a>	<a href="#">#M</a>	
	<a href="#">Delete Preset Memory</a>	<a href="#">#C</a>	
	<a href="#">Preset Max NumberConfirmation</a>	<a href="#">#PE</a>	
	<a href="#">Request Latest Recall Preset No.</a>	<a href="#">#S</a>	
	<a href="#">Preset completion notification</a>	<a href="#">q</a>	
Others			
	<a href="#">MODEL NUMBER</a>	<a href="#">QID</a>	
	<a href="#">PowerON, Standby</a>	<a href="#">#O</a>	

## Scene

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks
Scene	Control	XSF: [Data]	0 1 2 3	Scene1 Scene2 Full Auto	cam ※1	※2	OSF: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=XSF_1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=XSF_1&amp;res=1</a>
	Response	XSF: [Data]						
	Request	QSF	0 1 2 3	Scene1 Scene2 Full Auto				
	Response	OSF: [Data]						

※1 There are two type of command type "ptz" is Pan-Tilt head control and "cam" is for camera control

※2 When switching scene, update notification of each command belonging to the scene will be sent

項目	コメント	項目	コメント
Scene	XSF:[Data]	Auto F.Mix Max Gain	OSE:74:[Data]
Iris Mode	ORS:[Data]	Chroma Level	OCG:[Data]
Picture Level	d31:[Data]	White Balance Mode	OAW:[Data]
AGC Max Gain	OSD:48:[Data]	R Gain	OSG:39:[Data]
	OSD:69:[Data]	B Gain	OSG:3A:[Data]
Shutter Mode	OSJ:03:[Data]	Pedestal	OSJ:0F:[Data]
Slow Shutter	OSJ:80:[Data]	Detail	ODT:[Data]
Step VAL	OSJ:06:[Data]	Contrast	OSD:50:[Data]
Synchro VAL	OSJ:09	DRS	OSE:33:[Data]
Gain	OGU:[Data]	Back Light COMP.	OSE:73:[Data]
Frame Mix	OSA:65:[Data]	DNR	OSD:3A:[Data]

# Brightness

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks
Picture Level	Control	OSD:48: [Data]	2Eh	-4	cam	OSD:48: [Data]	OSD:48:0x[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=OSD:48:32&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=OSD:48:32&amp;res=1</a>
	Response	OSD:48: [Data]	-	0				
	Request	OSD:48: [Data]	32h	0				
AGC Max Gain	Control	OSD:48: [Data]	36h	-4	cam	OSD:69: [Data]	OSD:69: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=OSD:69:04&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=OSD:69:04&amp;res=1</a>
	Response	OSD:48: [Data]	04	24dB				
	Request	OSD:69: [Data]	05	30dB				
Slow Shutter	Control	OSD:69: [Data]	06	36dB	cam	OSJ:80: [Data]	OSJ:80: [Data]	<p>On mode</p> <p>[50Hz]</p> <p>1/1, 1/2, 1/3, 1/6, 1/12, 1/25, 1/50, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/16000</p> <p>59.94Hz/60Hz</p> <p>1/1, 1/2, 1/3, 1/7, 1/15, 1/30, 1/60, 1/120, 1/240, 1/480, 1/1000, 1/2000, 1/4000, 1/8000, 1/16000</p> <p>Off mode</p> <p>[50Hz]</p> <p>1/50, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/16000</p> <p>59.94Hz/60Hz</p> <p>1/60, 1/120, 1/240, 1/480, 1/1000, 1/2000, 1/4000, 1/8000, 1/16000</p>
	Response	OSD:69: [Data]	07	42dB				
	Request	OSJ:80: [Data]	0	Off				
Iris Mode	Control	ORS: [Data]	0	0n	cam	ORS: [Data]	ORS: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=ORS:1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=ORS:1&amp;res=1</a>
	Response	ORS: [Data]	1	Manual				
	Request	OSJ:80: [Data]	0	Auto				
Iris Mode	Control	ORS: [Data]	0	Manual	ptz	d3[Data]	d3[Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=V3D30&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=V3D30&amp;res=1</a>
	Response	ORS: [Data]	1	Auto				
	Request	#D3[Data]	0	Manual				
Shutter Mode	Control	d3[Data]	0	100	cam	OSJ:03: [Data]	OSJ:03: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=OSJ:03:1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=OSJ:03:1&amp;res=1</a>
	Response	d3[Data]	1	Off				
	Request	OSJ:03: [Data]	0h	Step				
Step INC	Control	OSJ:03: [Data]	0h	100	cam	OSJ:04: [Data]	-	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=OSJ:04:01&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=OSJ:04:01&amp;res=1</a>
	Response	OSJ:03: [Data]	1h	1				
	Request	OSJ:04: [Data]	2h	100				
Step DEC	Control	OSJ:04: [Data]	01h	1	cam	OSJ:05: [Data]	-	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=OSJ:05:01&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=OSJ:05:01&amp;res=1</a>
	Response	OSJ:04: [Data]	-	1				
	Request	OSJ:05: [Data]	64h	100				
	Response	OSJ:05: [Data]	01h	1	cam	-	-	Update notification of OSJ:06 is sent
	Request	-	64h	100	cam	-	-	Update notification of OSJ:06 is sent
	Response	-	-	-	-	-	-	-

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks
Step VAL	Control	0SJ:06:[Data]						<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=0SJ:06:0030&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=0SJ:06:0030&amp;res=1</a> Except for the effective shutter speed, respond with ER3 ▼50Hz 0001h 1/1 0002h 1/2 0003h 1/3 0006h 1/6 0008h 1/12 0019h 1/25 0032h 1/50 0064h 1/100 00FAh 1/250 01F4h 1/500 03E8h 1/1000 0700h 1/2000 0FA0h 1/4000 1F40h 1/8000 3E80h 1/16000 ▼59.94/60Hz 0001h 1/1 0002h 1/2 0003h 1/3 0007h 1/7 000Fh 1/15 001Eh 1/30 0030h 1/60 0078h 1/120 00F0h 1/240 01E0h 1/480 03E8h 1/1000 0700h 1/2000 0FA0h 1/4000 1F40h 1/8000 3E80h 1/16000
	Response	0SJ:06:[Data]	0001h - 3E80h	1/1 - 1/16000	cam	0SJ:06:[Data]	0SJ:06:0x[Data]	
	Request	0SJ:06						
Synchro INC	Response	0SJ:06:[Data]						<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=0SJ:07:01&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=0SJ:07:01&amp;res=1</a> Increase [Data] stage among selectable Shutter Steps Update notification of 0SJ:09 is sent
	Control	0SJ:07:[Data]	01h - 64h	1 - 100	cam	-	-	
	Request	0SJ:07:[Data]						
Synchro DEC	Control	0SJ:08:[Data]	01h - 64h	1 - 100	cam	-	-	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=0SJ:08:01&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=0SJ:08:01&amp;res=1</a> Decrease [Data] stage among selectable Shutter Steps Update notification of 0SJ:09 is sent
	Response	0SJ:08:[Data]						
	Request	0SJ:08:[Data]						
Synchro VAL	Control	0SJ:09:[Data]						<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=0SJ:09:0025&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=0SJ:09:0025&amp;res=1</a> Except for the effective shutter speed, round down • System Frequency : 50Hz 50.0Hz~570.1Hz • System Frequency : 59.94Hz / 60Hz 60.0Hz~660.0Hz
	Response	0SJ:09:[Data]	001F4h - 019C8h	50.0[Hz] - 660.0[Hz]	cam	0SJ:09:[Data]	0SJ:09:0x[Data]	
	Request	0SJ:09						
Gain	Control	06U:[Data]	08h - 11h - 1Ah - 32h 80h	0dB - 9dB - 18dB - 42dB Auto	cam	06U:[Data]	06U:0x[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=06U:08&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=06U:08&amp;res=1</a> step:3dB
	Response	06U:[Data]						
	Request	06U						
	Response	06U:[Data]						

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks
Frame Mix	Control	OSA: 65: [Data]	00h	Off	cam	OSA: 65: [Data]	OSA: 65: 0x [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSA:65:00&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSA:65:00&amp;res=1</a>
	Response	OSA: 65: [Data]	06h	+6dB				
	Request	OSA: 65	0Ch	+12dB				
	Response	OSA: 65: [Data]	12h	+18dB				
Auto F. Mix Mex Gain	Control	OSE: 74: [Data]	00	(Off)	cam	OSE: 74: [Data]	OSE: 74: 0x [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:74:01&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:74:01&amp;res=1</a>
	Response	OSE: 74: [Data]	01	6dB				
	Request	OSE: 74	02	12dB				
	Response	OSE: 74: [Data]	03	18dB				



# Picture

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks				
Chroma Level	Control	OCG: [Data]	03h 04h 05h 06h 07h	0 1 2 3 4	cam	OCG: [Data]	OCG: 0x [Data]	<a href="http://192.168.0.10/cg1-bin/aw_cam2cmd=OCG:08&amp;res=1">http://192.168.0.10/cg1-bin/aw_cam2cmd=OCG:08&amp;res=1</a>				
	Response	OCG: [Data]	08h 09h 0Ah 0Bh 0Ch 0Dh	5 6 7 8 9 10								
	Request	OCG										
	Response	OCG: [Data]										
White Balance Mode	Control	0AW: [Data]	0 1 2 3 4 5	ATW AWC A AWC B PRESET 3200K PRESET 5600K	cam	0AW: [Data]	0AW: [Data]	<a href="http://192.168.0.10/cg1-bin/aw_cam2cmd=0AW:1&amp;res=1">http://192.168.0.10/cg1-bin/aw_cam2cmd=0AW:1&amp;res=1</a>				
	Response	0AW: [Data]										
	Request	0AW										
	Response	0AW: [Data]										
	Control	0WS 0WS	- -	- -					cam	0WS ER3: 0WS	-	See Chapter 6 for AWB execution sequence
	Response	0WS										
	Request	0WS										
	Response	0WS										
ABB	Control	0AS 0AS	- -	- -	cam	ER3: 0AS	-	UE20/HE20 does not ABB function, ABB cannot be executed and can not get return errors				
	Response	0AS										
	Request	0AS										
	Response	0AS										
R Gain	Control	0SG: 39: [Data]	7E2h - 800h	-30 - 0	cam	0SG: 39: [Data]	0SG: 39: 0x [Data]	<a href="http://192.168.0.10/cg1-bin/aw_cam2cmd=OSG:39:3800&amp;res=1">http://192.168.0.10/cg1-bin/aw_cam2cmd=OSG:39:3800&amp;res=1</a>				
	Response	0SG: 39: [Data]	81Eh	30								
	Request	0SG: 39										
	Response	0SG: 39: [Data]										
	Control	0SG: 3A: [Data]	7E2h - 800h	-30 - 0					cam	0SG: 3A: [Data]	0SG: 3A: 0x [Data]	<a href="http://192.168.0.10/cg1-bin/aw_cam2cmd=OSG:3A:8000&amp;res=1">http://192.168.0.10/cg1-bin/aw_cam2cmd=OSG:3A:8000&amp;res=1</a>
	Response	0SG: 3A: [Data]	81Eh	30								
	Request	0SG: 3A										
	Response	0SG: 3A: [Data]										
Pedestal	Control	0SJ: 0F: [Data]	7F6h - 800h	-10 - 0	cam	0SJ: 0F: [Data]	0SJ: 0F: 0x [Data]	<a href="http://192.168.0.10/cg1-bin/aw_cam2cmd=OSJ:0F:8000&amp;res=1">http://192.168.0.10/cg1-bin/aw_cam2cmd=OSJ:0F:8000&amp;res=1</a>				
	Response	0SJ: 0F: [Data]	80Ah	+10								
	Request	0SJ: 0F										
	Response	0SJ: 0F: [Data]										
	Control	0DT: [Data]	0 1 2 3	0 1 2 3					cam	0DT: [Data]	0DT: [Data]	<a href="http://192.168.0.10/cg1-bin/aw_cam2cmd=0DT:1&amp;res=1">http://192.168.0.10/cg1-bin/aw_cam2cmd=0DT:1&amp;res=1</a>
	Response	0DT: [Data]										
	Request	0DT										
	Response	0DT: [Data]										
Detail	Control	0SD: 50: [Data]	0 1 2 3 4	0 1 2 3 4	cam	0SD: 50: [Data]	0SD: 50: [Data]	<a href="http://192.168.0.10/cg1-bin/aw_cam2cmd=OSD:50:1&amp;res=1">http://192.168.0.10/cg1-bin/aw_cam2cmd=OSD:50:1&amp;res=1</a>				
	Response	0SD: 50: [Data]										
	Request	0SD: 50										
	Response	0SD: 50: [Data]										
DRS	Control	0SE: 33: [Data]	0 1	Off On	cam	0SE: 33: [Data]	0SE: 33: [Data]	<a href="http://192.168.0.10/cg1-bin/aw_cam2cmd=OSE:33:1&amp;res=1">http://192.168.0.10/cg1-bin/aw_cam2cmd=OSE:33:1&amp;res=1</a>				
	Response	0SE: 33: [Data]										
	Request	0SE: 33										
	Response	0SE: 33: [Data]										

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks
Back Light COMP.	Control	OSE:73: [Data]	0 1	Off On	cam	OSE:73: [Data]	OSE:73: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:73:1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:73:1&amp;res=1</a>
	Response	OSE:73: [Data]						
	Request	OSE:73						
DMR	Control	OSE:73: [Data]	00 01 02	Off Low High	cam	OSE:3A: [Data]	OSE:3A: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSD:3A:01&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSD:3A:01&amp;res=1</a>
	Response	OSD:3A: [Data]						
	Request	OSD:3A						
	Response	OSD:3A: [Data]						
	Request	OSD:3A: [Data]						

# System

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks
Frequency	Control	OSE:77: [Data]	0	59, 94Hz	cam	OSE:77: [Data]	OSE:77: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:77:&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:77:&amp;res=1</a> Reboot after changing Frequency
	Response	OSE:77: [Data]	1	50Hz				
	Request	OSE:77: [Data]	4	60Hz				
Format	Control	OSA:87: [Data]	0h	720/60p	cam	OSA:87: [Data]	OSA:87:0x[Data]	[UE20] [50Hz] 2160/25p, 1080/50p, 1080/50i, 1080/25p, 720/50p 1080/60i [59, 94Hz] 2160/29.97p, 1080/59.94p, 1080/59.94i, 1080/29.97p, 720/59.94p [60Hz] 2160/30p, 1080/60p, 1080/60i, 1080/30p, 720/60p ※In the case that Priority Mode is '4K', Format is 2160/25p, 2160/29.97p, 2160/30p according to Frequency
	Response	OSA:87: [Data]	1h	720/50p				
	Request	OSA:87: [Data]	2h	1080/60i				
	Response	OSA:87: [Data]	3h	1080/59.94i				
	Request	OSA:87: [Data]	4h	1080/50i				
	Response	OSA:87: [Data]	5h	1080/59.94p				
TALLY Enable	Control	#TAE [Data]	0	Disable	ptz	tAE [Data]	tAE [Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23TAE&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23TAE&amp;res=1</a>
	Response	#TAE [Data]	1	Enable				
	Request	#TAE [Data]	0	OFF				
	Response	#TAE [Data]	1	ON				
	Request	#DA [Data]	0	OFF				
	Response	#DA [Data]	1	ON				
Tally Information	Control	-	[Data1]	Tally LED Off	ptz	tAA [Data1] [Data2] [Data3] [Data4] [Data5] [Data6] [Data7] [Data8] [Data9]	tAA [Data1] [Data2] [Data3] [Data4] [Data5] [Data6] [Data7] [Data8] [Data9]	When #DA and #TAE change, if #TAA also changes, an update notification is sent
	Response	-	0	Tally LED On				
	Request	-	1	Reserved				
	Response	-	0	Reserved				
	Request	-	0	Command (#DA) Off				
	Response	-	1	Command (#DA) On				
	Request	#TAA	0	Reserved				
	Response	#TAA	0	Reserved				
	Request	#TAA	0	Reserved				
	Response	#TAA	0	Reserved				
	Request	#TAA	0	Reserved				
	Response	#TAA	0	Reserved				
Status Lamp	Control	#IMP [Data]	0	Disable	ptz	IMP [Data]	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23IMP0&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23IMP0&amp;res=1</a>
	Response	#IMP [Data]	1	Enable				
	Request	#IMP [Data]	0	01				
Wireless ID	Control	#RID [Data]	0	01	ptz	rID [Data]	rID [Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23RID&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23RID&amp;res=1</a>
	Response	#RID [Data]	1	02				
	Request	#RID [Data]	2	03				
Response	#RID [Data]	3	04					

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks
Wireless Control	Control	#WLC[Data1]	0	Disable	ptz	WLC[Data1]	WLC[Data1]	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23WLC&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23WLC&amp;res=1</a>
	Response	WLC[Data1]	1	Enable				
	Request	#WLC						
	Response	WLC[Data1]						
OSD Off With TALLY	Control	OSE:75:[Data]	0	OFF	cam	OSE:75:[Data]	OSE:75:[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:75.1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:75.1&amp;res=1</a>
	Response	OSE:75:[Data]	1	ON				
	Request	OSE:75:[Data]						
	Response	OSE:75:[Data]						
COLORBAR/CAMERA	Control	DCB:[Data]	0	Camera	cam	DCB:[Data]	DCB:[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=DCB:1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=DCB:1&amp;res=1</a>
	Response	DCB:[Data]	1	Color Bar				
	Request	QBR						
	Response	QBR:[Data]						
Audio	Control	OSA:00:[Data]	0	OFF	cam	OSA:00:[Data]	OSA:00:[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSA:00.1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSA:00.1&amp;res=1</a>
	Response	OSA:00:[Data]	1	ON				
	Request	OSA:00						
	Response	OSA:00:[Data]						
Audio Input Type	Control	OSA:01:[Data]	0	Mic	cam	OSA:01:[Data]	OSA:01:[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSA:01.0&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSA:01.0&amp;res=1</a>
	Response	OSA:01:[Data]	3	Line				
	Request	OSA:01						
	Response	OSA:01:[Data]						
Audio Volume Level	Control	OSA:05:[Data1]:[Data2]	[Data1]	[Data1]		[Data1]	[Data1]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSA:05.0:50&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSA:05.0:50&amp;res=1</a>
	Response	OSA:05:[Data1]:[Data2]	0	GH	cam	OSA:05:[Data1]:[Data2]	OSA:05:[Data1]:[Data2]	
	Request	OSA:05:[Data1]	50h	-36dB				
	Response	OSA:05:[Data1]:[Data2]	80h	0dB				
Audio Plug in Power	Control	OSA:05:[Data1]:[Data2]	80h	12dB				Step: 3dB
	Response	OSA:05:[Data1]:[Data2]	80h					
	Request	OSA:05:[Data1]:[Data2]						
	Response	OSA:05:[Data1]:[Data2]						
Serial Com. Protocol	Control	OSA:D2:[Data]	0	Off	cam	OSA:D2:[Data]	OSA:D2:[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSA:D2.0&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSA:D2.0&amp;res=1</a>
	Response	OSA:D2:[Data]	1	On				
	Request	OSA:D2						
	Response	OSA:D2:[Data]						
Connector Select	Control	OVP:02:[Data]	0	Panasonic Standard	cam	OSA:D2:[Data]	OSA:D2:[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OVP:02.1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OVP:02.1&amp;res=1</a>
	Response	OVP:02:[Data]	1					
	Request	OVP:02						
	Response	OVP:02:[Data]						
Baud Tate	Control	OVP:03:[Data]	0	RS422	cam	OSA:D2:[Data]	OSA:D2:[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OVP:03.1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OVP:03.1&amp;res=1</a>
	Response	OVP:03:[Data]	1	RS232C				
	Request	OVP:03						
	Response	OVP:03:[Data]						
Camera Address	Control	OVP:04:[Data]	0	9600bps	cam	OSA:D2:[Data]	OSA:D2:[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OVP:04.1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OVP:04.1&amp;res=1</a>
	Response	OVP:04:[Data]	1	38400bps				
	Request	OVP:04						
	Response	OVP:04:[Data]						
Camera Address	Control	OVP:05:[Data]	0	Auto				<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OVP:05.1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OVP:05.1&amp;res=1</a>
	Response	OVP:05:[Data]	1	1				
	Request	OVP:05	2	2				
	Response	OVP:05:[Data]	3	3				
	Request	OVP:05	4	4				
	Response	OVP:05:[Data]	5	5				
	Request	OVP:05	6	6				
Response	OVP:05:[Data]	7	7					

## Maintenance

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks
Language	Control	OSJ:82:[Data]	0	English Japanese Chinese	cam	OSJ:82:[Data]	OSJ:82:[Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSJ:82:1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSJ:82:1&amp;res=1</a>
	Response	OSJ:82:[Data]	1					
	Request	OSJ:82	2					
SOFTWARE VERSION	Control	--	-	VXX.XX example: V01.06	cam	-	-	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSV&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSV&amp;res=1</a>
	Response	--						
	Request	OSV						
	Response	OSV:[Data]						

**OSD**

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.htm	Usage example / Remarks
MENU	Control	DUS: [Data]	0	Off On	cam	-	OUS: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=DUS.I&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=DUS.I&amp;res=1</a>
	Response	DUS: [Data]	1					
	Request	OUS						
MENU SW	Control	OUS: [Data]	1	Cancel	cam	-		<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=DP&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=DP&amp;res=1</a>
	Response	DPG: [Data]						
	Request	DPG: [Data]						
ITEM SW	Control	DIT: [Data]	1	Enter	cam	-		<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=DIT&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=DIT&amp;res=1</a>
	Response	DIT: [Data]						
	Request							
YES SW	Control	DUP: [Data]	1	Up	cam	-		<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=DUP&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=DUP&amp;res=1</a>
	Response	DUP: [Data]						
	Request							
NO SW	Control	DOW: [Data]	1	Down	cam	-		<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=DOW&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=DOW&amp;res=1</a>
	Response	DOW: [Data]						
	Request							
RIGHT SW	Control	DRT: [Data]	1	Right	cam	-		<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=DRT&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=DRT&amp;res=1</a>
	Response	DRT: [Data]						
	Request							
LEFT SW	Control	DLT: [Data]	1	Left	cam	-		<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=DLT&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=DLT&amp;res=1</a>
	Response	DLT: [Data]						
	Request							

# Pan/Tilt

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks
Install Position	Control	#INS[Data]	0	Desktop Hanging	ptz	INS[Data]	INS[Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23INSI&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23INSI&amp;res=1</a>
	Response	#INS[Data]	1					
	Request	#INS						
	Response	#INS[Data]						
Speed With Zoom Position	Control	#SWZ[Data]	0	Off On	ptz	sWZ[Data]	sWZ[Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23SWZ1&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23SWZ1&amp;res=1</a>
	Response	#SWZ[Data]	1					
	Request	#SWZ						
	Response	#SWZ[Data]						
Focus Adjust With PTZ.	Control	OAZ: [Data]	0	Off On	cam	OAZ: [Data]	OAZ: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OAZ-0&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OAZ-0&amp;res=1</a>
	Response	OAZ: [Data]	1					
	Request	OAZ						
	Response	OAZ: [Data]						
Pan/Tilt Absolute Position Control	Control	#APC[Data1][Data2]	[Data1] 2F69h	[Data1]Pan Position Right Limit(±170° ) Center Left Limit(±170° ) [Data2]Tilt Position Up Limit(+90° ) Center Down Limit(-30° )	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23APC0008000&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23APC0008000&amp;res=1</a>
	Response	aPC[Data1][Data2]	8000h					
	Request	-	0097h [Data2] 5555h					
	Response	-	8000h 8E38h					
Pan Speed Control	Control	#P[Data]	01	Left Max. Speed Pan Stop Right Max. Speed	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23P70&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23P70&amp;res=1</a>
	Response	pS[Data]	50					
	Request	-	99					
	Response	-						
Tilt Speed Control	Control	#T[Data]	01	Down Max. Speed Tilt Stop Up Max. Speed	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23T70&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23T70&amp;res=1</a>
	Response	tS[Data]	50					
	Request	-	99					
	Response	-						
Pan Tilt Speed Control	Control	#PTS[Data1][Data2]	[Data1] 01	[Data1] Left Max. Speed Pan Stop Right Max. Speed [Data2] Down Max. Speed Tilt Stop Up Max. Speed	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23PTS7070&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23PTS7070&amp;res=1</a>
	Response	pTS[Data1][Data2]	50					
	Request	-	[Data2] 01					
	Response	-	50 99					
Limitation Control	Control	#LC[Data1][Data2]	[Data1] 1	[Data1] Tilt Up Tilt Down Pan Left Pan Right [Data2] Release Set	ptz	IC[Data1][Data2]	IC1[Data2] IC2[Data2] IC3[Data2] IC4[Data2]	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23LC11&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23LC11&amp;res=1</a>
	Response	LC[Data1][Data2]	2 3 4					
	Request	#LC[Data1]	[Data2] 0					
	Response	LC[Data1][Data2]	1					

# Lens

Command name	Category	Command	Data value	Setting	Command Type	Update notification	responseData.html	Usage example / Remarks
Focus Mode	Control	0AF: [Data]	0	Manual	cam	0AF: [Data]	0AF: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=0AF:0&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=0AF:0&amp;res=1</a>
	Response	0AF: [Data]	1	Auto				
	Request	#AF [Data]						
Focus Mode	Control	#DI [Data]	0	Manual	ptz	DI [Data]	DI [Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23DI0&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23DI0&amp;res=1</a>
	Response	#DI [Data]	1	Auto				
	Request	#DI [Data]						
Digital Zoom	Control	OSE: 70: [Data]						<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:70:1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:70:1&amp;res=1</a>
	Response	OSE: 70: [Data]	0	Disable	cam	OSE: 70: [Data]	OSE: 70: [Data]	[Zoom Mode] -Opt Zoom OSE: 70: 0 OSD: B3: 0
	Request	OSE: 70	1	Enable				-i Zoom OSE: 70: 0 OSD: B3: 1
	Response	OSE: 70: [Data]						-p Zoom OSE: 70: 1 OSD: B3: 0
	Control	OSD: B3: [Data]	0	Disable	cam	OSD: B3: [Data]	OSD: B3: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSD:B3:0&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSD:B3:0&amp;res=1</a>
	Request	OSD: B3	1	Enable				<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSD:B3:1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSD:B3:1&amp;res=1</a>
Max Digital Zoom	Control	OSE: 7A: [Data]	02	x2	cam	OSE: 7A: [Data]	OSE: 7A: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:7A:03&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:7A:03&amp;res=1</a>
	Response	OSE: 7A: [Data]	03	x3				
	Request	OSE: 7A	04	x4				
	Response	OSE: 7A: [Data]						
Digital Extender	Control	OSJ: 4E: [Data]	0	OFF	cam	OSJ: 4E: [Data]	OSJ: 4E: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSJ:4E:1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSJ:4E:1&amp;res=1</a>
	Response	OSJ: 4E: [Data]	x1.4					
	Request	OSJ: 4E	2	x2.0				
	Response	OSJ: 4E: [Data]						
Zoom Position Control	Control	#AZ [Data]	555h	Wide	ptz		axz [Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23AZ555&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23AZ555&amp;res=1</a>
	Response	#AZ [Data]	---	Tele				
	Request	#AZ	FFFh	Tele				
	Response	axz [Data]						
Request Zoom Position	Control	---	555h	Wide	ptz			<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%2307&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%2307&amp;res=1</a>
	Response	---	FFFh	Tele				
	Request	#6Z	"-----"	@Power OFF				
	Response	gz [Data]						
Zoom Speed Control	Control	#Z [Data]	01	Wide Max. Speed	ptz			<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23Z10&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23Z10&amp;res=1</a>
	Response	#Z [Data]	50	Zoom Stop				
	Request	zS [Data]	---	Tele Max. Speed				
	Response	---	99					
Digital Zoom Magnification	Control	OSE: 76: [Data]	0100	x1.00	cam	OSE: 76: [Data]	---	<a href="http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:76:0100&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam?cmd=OSE:76:0100&amp;res=1</a>
	Response	OSE: 76: [Data]	---					
	Request	OSE: 76	0400	x4.00				
	Response	OSE: 76: [Data]						
Focus Position Control	Control	#AXF [Data]	555h	Near	ptz		axf [Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23AXF555&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23AXF555&amp;res=1</a>
	Response	#AXF [Data]	---	Far				
	Request	#AXF	FFFh	Far				
	Response	axf [Data]						
Request Focus Position	Control	---	555h	Near	ptz			<a href="http://192.168.0.10/cgi-bin/aw_ptz?cmd=%230F&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz?cmd=%230F&amp;res=1</a>
	Response	---	FFFh	Far				
	Request	#6F	"-----"	@Power OFF				
	Response	gf [Data]						



Command name	Category	Command	Data value	Setting	Command Type	Update notification	camdata.html	Usage example / Remarks
Focus Speed Control	Control	#F [Data]	01	Near Max. Speed	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23F50&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23F50&amp;res=1</a>
	Response	FS [Data]	49	Near Min. Speed				
	Request	-	50	Stop				
	Response	-	51	Far Min. Speed				
Push Auto Focus	Control	OSE: 69: [Data]	1	Push Auto	cam	-	-	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=0SE:69:1&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=0SE:69:1&amp;res=1</a>
	Response	OSE: 69: [Data]	555h	Iris Close				
	Request	-	FFFh	Iris Open				
	Response	-	FFFh	Iris Open				
Iris Control	Control	#AXI [Data]	01	Iris Close	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23AXI555&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23AXI555&amp;res=1</a>
	Response	axi [Data]	01	Iris Close				
	Request	-	99	Iris Open				
	Response	-	99	Iris Open				
Iris Control	Control	#I [Data]	000h	Iris Close	cam	ORV: [Data]	-	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=ORV:000&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=ORV:000&amp;res=1</a>
	Response	IRV: [Data]	3FFh	Iris Open				
	Request	-	3FFh	Iris Open				
	Response	-	3FFh	Iris Open				
Request Iris Position	Control	-	[Data1]	[Data1] Close	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23G1&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23G1&amp;res=1</a>
	Response	-	555h	Open				
	Request	-	FFFh	@Power OFF				
	Response	#G1	"-----"					
Request Iris F. No.	Control	-	[Data2]	[Data2] Manual Iris Auto Iris	cam	-	01F: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=01F&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=01F&amp;res=1</a>
	Response	-	0Eh	F1.4				
	Request	-	1Ch	F2.8				
	Response	01F: [Data]	38h	F5.6				
Iris Follow	Control	-	A0h	F16	cam	-	OSD:4F: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=OSD:4F&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=OSD:4F&amp;res=1</a>
	Response	-	FFFh	CLOSE				
	Request	-	00h	Iris Close				
	Response	-	FFFh	Iris Open				
Lens Position Information Control	Control	-	0	Off	ptz	IPC[Data]	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23IPC&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23IPC&amp;res=1</a>
	Response	-	1	On				
	Request	-	[Data1]	[Data1]Zoom Position				
	Response	-	555h	Wide				
Lens Position Information	Control	-	FFFh	Tele	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23P1&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23P1&amp;res=1</a>
	Response	-	[Data2]	[Data2]Focus Position				
	Request	#LP1	555h	Near				
	Response	IP1 [Data1] [Data2] [Data3]	FFFh	Far				
Request Iris F. No.	Control	-	555h	[Data3]Iris Position	-	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23P1&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23P1&amp;res=1</a>
	Response	-	555h	Close				
	Request	-	FFFh	Open				
	Response	-	FFFh	Open				

# Preset

Command name	Category	Command	Data value	Setting	Command type	Update notification	candidate.html	Usage example / Remarks
Preset Speed Table	Control	#PSI [Data]	0	Slow Fast	ptz	pST [Data]	pST [Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23PSI0&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23PSI0&amp;res=1</a>
	Response	nSI [Data]	2					
	Request	#PSI						
	Response	nSI [Data]						
Preset Speed	Control	#UPVS [Data]		30 : MaxSpeed 1 : Slow ~ 30 : Fast	ptz	uPVS [Data]	uPVS [Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23UPVS0&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23UPVS0&amp;res=1</a>
	Response	uPVS [Data]						
	Request	#UPVS	000 250 - 999					
	Response	uPVS [Data]						
Preset Scope	Control	OSE:71: [Data]	0	MODE A MODE B MODE C	cam	OSE:71: [Data]	OSE:71: [Data]	<a href="http://192.168.0.10/cgi-bin/aw_cam2cmd=OSE:71:0&amp;res=1">http://192.168.0.10/cgi-bin/aw_cam2cmd=OSE:71:0&amp;res=1</a>
	Response	OSE:71: [Data]	1					
	Request	OSE:71	2					
	Response	OSE:71: [Data]						
Save Preset Memory	Control	#M [Data]	00	Preset001 - Preset100	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23M00&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23M00&amp;res=1</a>
	Response	s [Data]	-					
	Request	-	99					
	Response	-						
Recall Preset Memory	Control	#R [Data]	00	Preset001 - Preset100	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23R00&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23R00&amp;res=1</a>
	Response	s [Data]	-					
	Request	-	99					
	Response	-						
Preset completion notification	Control	q [Data]	00	Preset001 - Preset100	ptz	q [Data]	-	
	Response	-	-					
	Request	-	99					
	Response	-						
Delete Preset Memory	Control	#C [Data]	00	Preset001 - Preset100	ptz	-	-	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23C000&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23C000&amp;res=1</a>
	Response	s [Data]	-					
	Request	-	99					
	Response	-						
Request Latest Recall Preset No.	Control	-	00	Preset001 - Preset100	ptz	s [Data]	s [Data]	<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23S&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%23S&amp;res=1</a>
	Response	-	-					
	Request	#S	99					
	Response	s [Data]						

Command name	Category	Command	Data value	Setting	Command type	Update notification	camdata.html	Usage example / Remarks
Preset Entry Confirmation	Control	-	[Data1] 00h - 02h	[Data1] multiple (each 40 Preset No)				<a href="http://192.168.0.10/cgi-bin/aw_ptz2cmd=%3PE00&amp;res=1">http://192.168.0.10/cgi-bin/aw_ptz2cmd=%3PE00&amp;res=1</a>
	Response	-	[Data2] 0000000000h	[Data2]				
	Request	#PE[Data1]	FFFFFFFFFh (bit0) 0 1 (bit1) 0 1 -	PRESET No. (Data1*40 + 1) Entry No Entry PRESET No. (Data1*40 + 2) Entry No Entry -	ptz	pE[Data1][Data2]	pE00 [Data2] pE01 [Data2] pE02 [Data2]	
	Response	pE[Data1][Data2]	(39bit) 0 1	PRESET No. (Data1*40 + 40) Entry No Entry				

See Chapter 6 for preset sequence

