

# AI Auto Tracking PTZ Camera

**PTC310UV2 / PTC310HWV2 /**

**PTC320UNV2 / PTC330UV2**

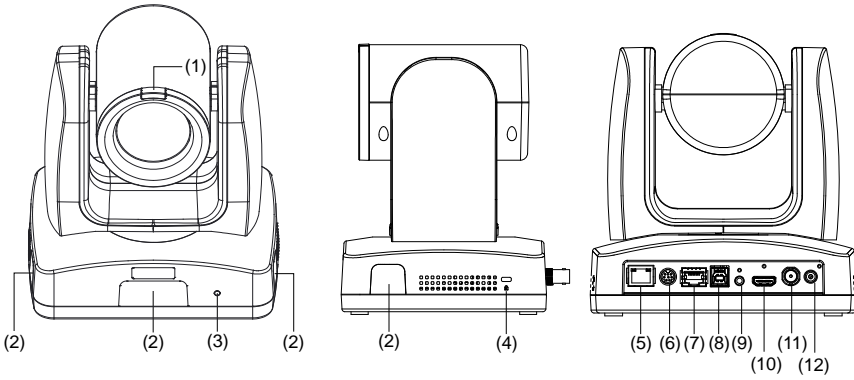
## Control Codes

2022.9.20



# Product Introduction

## Overview



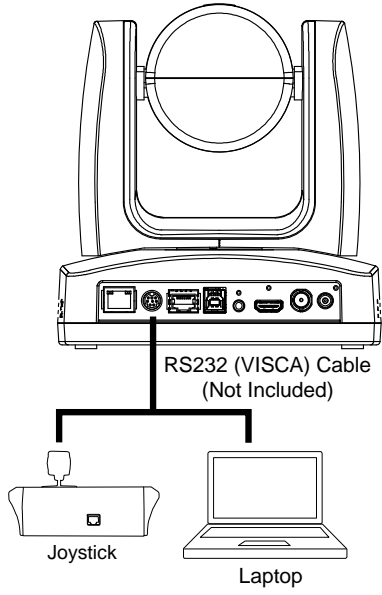
(1) Tally Lamp	(5) PoE+ IEEE 802.3AT	(9) Audio In*
(2) IR Sensor	(6) RS-232 Port	(10) HDMI Port
(3) LED Indicator	(7) RS-422 Port	(11) 3G-SDI**
(4) Kensington Lock	(8) USB 3.0 Port (Type-B)	(12) DC Power Jack

\*Line input level: 1Vrms (max.).

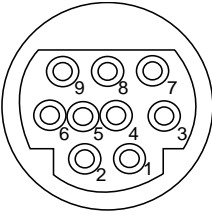
\*Mic input level: 50mVrms (max.); Supplied voltage: 2.5V.

\*\*The model names with “H” do not have this feature.

## ■ RS232

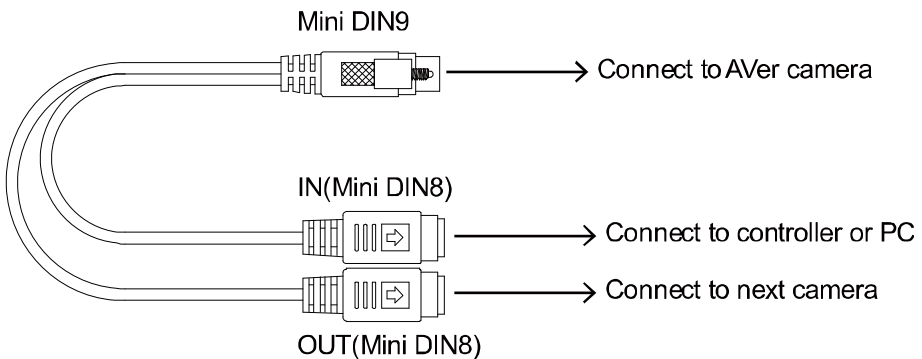


## ● RS232 Port Pin Definition

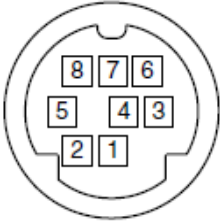


Function	Mini DIN9 PIN #	I/O Type	Signal	Description
VISCA IN	1	Output	DTR	Data Terminal Ready
	2	Input	DSR	Data Set Ready
	3	Output	TXD	Transmit Data
	6	Input	RXD	Receiver Data
VISCA OUT	7	Output	DTR	Data Terminal Ready
	4	Input	DSR	Data Set Ready
	8	Output	TXD	Transmit Data
	9	Input	RXD	Receiver Data
	5	---	---	Not connect

## ● RS232 mini DIN9 to mini DIN8 Cable Pin Definition



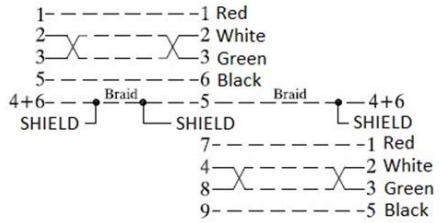
## Mini DIN8 Cable Pin Definition



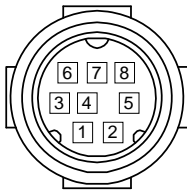
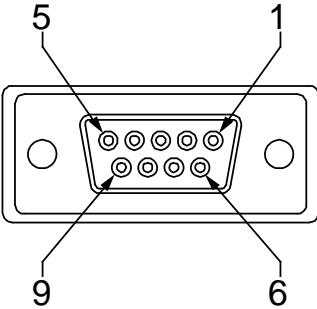
No.	Signal
1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	GND
7	NC
8	NC

## CIRCUITS:

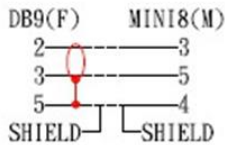
B:MD 8P(IN)      A:MD 9M      C:MD 8P(OUT)



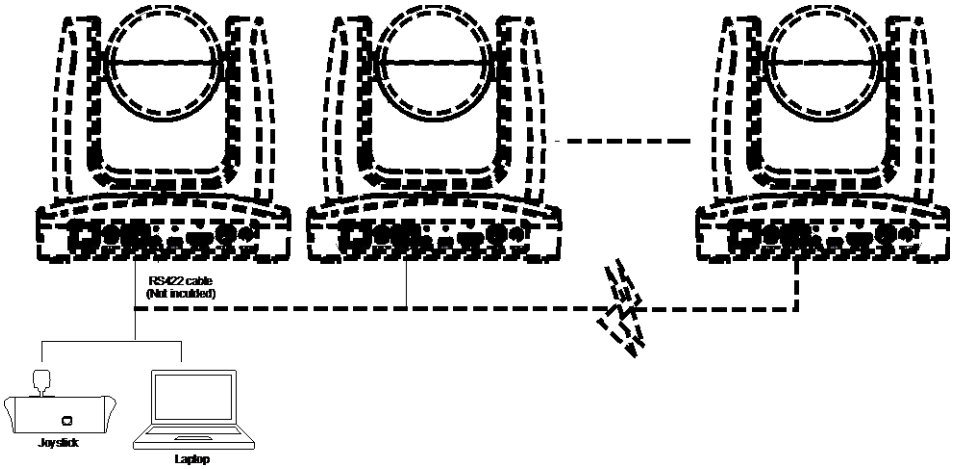
## Din8 to D-Sub9 Cable Pin Definition



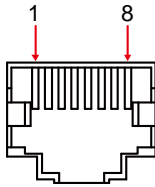
## PIN OUT:



## ■ RS422

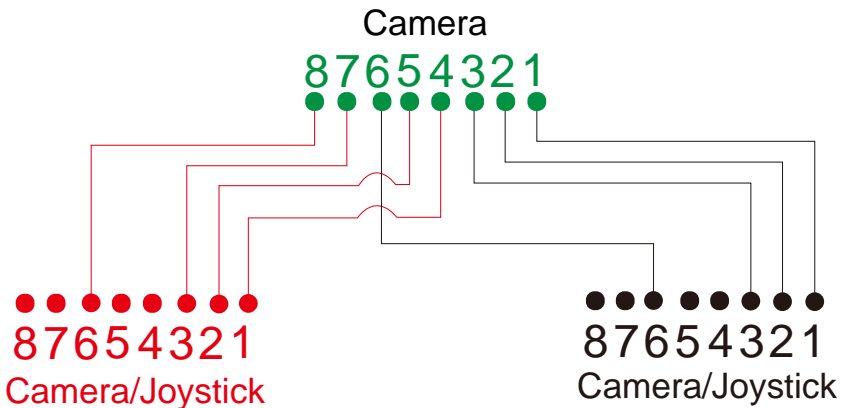


**[Note]** Use cat5e splitter for multi-camera connection.



RS422 Pin			
No.	Pin	No.	Pin
1	TX-	5	TX+
2	TX+	6	RX+
3	RX-	7	RX-
4	TX-	8	RX+

Cat5e splitter pin assignment:



## OSD Tree

### Advanced Setting

Go to Advanced Setting -> Control. Make sure the Camera Address, Baud Rate setting is correct.

1 <sup>st</sup> Layer	2 <sup>nd</sup> Layer	3 <sup>rd</sup> Layer	4 <sup>th</sup> Layer
Advanced Setting	Audio	Input Type	Line In
			MIC In
		Auto Gain Control	Off/On
		Noise Suppression	Off/Low/Normal
		Audio Volume	0-10
	Control	Serial Port	RS-232/RS-422
		Protocol	VISCA/PELCO D/PELCO P/AW
		Camera Address	1-7
		Baud Rate	4800/9600/38400
	Tracking	Off/On	-
	Tracking Mode	Presenter	-
		Zone	-
		Hybrid	-

# RS232/422 Visca Command Table

Command Set	Command	Command Packet	Comments
CAM_Power	On	8x01 04 00 02 FF	Power ON/OFF
	Off	8x01 04 00 03 FF	
CAM_Zoom	Stop	8x01 04 07 00 FF	
	Telnet(Variable)	8x01 04 07 3p FF	µ0 (Low) to 7 (High)
	Wide(Variable)	8x01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pgs: Zoom Position - PTC310: 0x0000-0x620 PTC330: 0x0110-0x5490
CAM_Focus	Stop	8x01 04 08 00 FF	
	Far (Standard)	8x01 04 08 03 FF	
	Near (Standard)	8x01 04 08 03 FF	Each 'Far/Near' needs a 'stop'
	Auto Focus	8x01 04 38 02 FF	
	Manual Focus	8x01 04 38 03 FF	
CAM_WB	One Push	8x01 04 35 04 FF	
	Direct	8x01 04 47 0p 0q 0r 0s FF	pgs: Zoom Position
CAM_RBgain	Auto	8x01 04 35 00 FF	Normal Auto
	ATW	8x01 04 35 04 FF	
	Indoor	8x01 04 35 03 FF	
	Outdoor	8x01 04 35 00 FF	
	Manual	8x01 04 35 05 FF	Manual Control mode
CAM_RGain	One Push	8x01 04 30 05 FF	One Push WB Trigger
	Up	8x01 04 03 02 FF	Manual Control of R Gain
CAM_Bgain	Down	8x01 04 03 03 FF	
	Up	8x01 04 04 02 FF	Manual Control of B Gain
CAM_AE	Down	8x01 04 04 03 FF	
	Full Auto	8x01 04 39 00 FF	Automatic Exposure mode
	Manual	8x01 04 39 03 FF	Manual Control mode
	Shutter Priority	8x01 04 39 0A FF	Shutter Priority Automatic Exposure mode
	Iris Priority	8x01 04 39 0B FF	Iris Priority Automatic Exposure mode
CAM_Shutter	Bright	8x01 04 0A 02 FF	Bright Mode (Manual control)
	Up	8x01 04 0A 02 FF	Shutter Setting
CAM_Iris	Down	8x01 04 0A 03 FF	
	Up	8x01 04 0B 02 FF	Iris Setting
CAM_Gain	Down	8x01 04 0B 03 FF	
	Up	8x01 04 0C 02 FF	Gain Setting
CAM_Bright	Down	8x01 04 0C 03 FF	
	Up	8x01 04 0D 02 FF	Bright Setting
CAM_ExpComp	Down	8x01 04 0D 03 FF	
	Up	8x01 04 0E 02 FF	Exposure Compensation Amount Setting
CAM_Backlight	On	8x01 04 33 02 FF	Back Light Compensation ON/OFF
	Off	8x01 04 33 03 FF	
CAM_Preset	Reset	8x01 04 3F 00 pp FF	
	Set	8x01 04 3F 01 pp FF	pp: Preset Number 0x00-0xFF
	Recall	8x01 04 3F 02 pp FF	
CAM_Menu	On/Off	8x01 06 06 10 FF	Display ON/OFF
	Up	8x01 06 01 VV WW 03 01 FF	
Pan-tilt Drive	Down	8x01 06 01 VV WW 03 02 FF	
	Left	8x01 06 01 VV WW 01 03 FF	
	Right	8x01 06 01 VV WW 02 03 FF	
	Up/Left	8x01 06 01 VV WW 01 01 FF	VV: Pan speed setting 0x01 (low speed) to 0x18 (high speed)
	Up/Right	8x01 06 01 VV WW 02 01 FF	WW: Tilt speed setting 0x01 (low speed) to 0x18 (high speed)
	Down/Left	8x01 06 01 VV WW 01 02 FF	
	Down/Right	8x01 06 01 VV WW 02 02 FF	
	Stop	8x01 06 01 VV WW 03 03 FF	
CAM_WDR	Home	8x01 06 04 FF	
	Reset	8x01 06 05 FF	
CAM_WDR	On	8x01 04 3D 02 FF	WDR ON/OFF
	Off	8x01 04 3D 03 FF	
CAM_MenuEnter		8x01 7E 01 01 00 01 FF	Enter Submenu
Tally Lamp ON		8x01 7E 01 0A 00 02 FF	
Tally Lamp OFF		8x01 7E 01 0A 00 03 FF	
Freeze	Freeze On	81 01 04 62 02 FF	Freeze On Immediately
	Freeze Off	81 01 04 62 03 FF	Freeze Off Immediately
	Preset Freeze On	81 01 04 62 22 FF	Freeze On When Running Preset
	Preset Freeze Off	81 01 04 62 23 FF	Freeze Off When Running Preset
Auto Tracking	On	8x01 04 7D 02 FF	Auto tracking ON/OFF
	Off	8x01 04 7D 03 FF	
CAM_Memory Special	Set	8x01 04 3F 01 pp FF	These are changeable depending on VISCA Customized Functions web setting: pp: 0x00 To 0xFF normal preset pp: 0x5F => Trun on OSD menu pp: 0xA0 => Full Body pp: 0xA1 => Upper Body pp: 0xA2 => Tracking Point pp: 0xA3 => Switch pp: 0xA4 => Presenter mode (supported in FW v25 or newer) pp: 0xA5 => Zone mode (supported in FW v25 or newer) pp: 0xA6 => Hybrid mode (supported in FW v25 or newer)
			VV: Pan speed setting 0x01 (low speed) to 0x18 (high speed) WW: Tilt speed setting 0x01 (low speed) to 0x18 (high speed) YYYY: Pan Position ZZZZ: Tilt Position
Auto zoom	On	8x01 04 A0 02 FF	
Effective Tracking area	Off	8x01 04 A0 03 FF	
	On	8x01 04 A1 02 FF	
RTMP	On	8x01 04 A1 03 FF	
	Off	8x01 04 A2 02 FF	
Video mode	On	8x01 04 A2 03 FF	
	Off	8x01 04 A2 03 FF	
Reboot	IP-Stream	8x01 04 A3 00 FF	
	Streaming only	8x01 04 A3 03 FF	
Preset Affects PTZ & Focus	USB only	8x01 04 A3 01 FF	
	NDI only	8x01 04 A3 02 FF	
Relative Zoom Ratio	On	8x01 04 A4 FF	
	Off	8x01 04 A5 02 FF	
Auto Tilt	On	8x01 04 A5 03 FF	
	Off	8x01 04 A6 02 FF	
Auto Zoom/Tilt preset	On	8x01 04 A6 03 FF	
	Off	8x01 04 A7 02 FF	
	Set	8x01 04 A7 03 FF	pp: 0x00 To 0xFF normal preset
		8x01 04 A8 pp FF	



Inquiry Command	Command Packet	Reply Packet	Comments
CAM_PowerInq	8x 09 04 00 FF	V0 50 02 FF	On
		V0 50 03 FF	Off
		V0 50 00 FF	Auto
		V0 50 01 FF	In Door
		V0 50 02 FF	Out Door
		V0 50 03 FF	One Push WB
		V0 50 04 FF	ATW
		V0 50 05 FF	Manual
CAM_RGainInq	8x 09 04 43 FF	V0 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	8x 09 04 44 FF	V0 50 00 00 0p 0q FF	pq: B Gain
		V0 50 00 FF	Full Auto
		V0 50 03 FF	Manual
		V0 50 0A FF	Shutter Priority
		V0 50 0B FF	Iris Priority
		V0 50 00 FF	Bright
CAM_ShutterPosInq	8x 09 04 4A FF	V0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	V0 50 00 00 0p 0q FF	pq: Iris Position
CAM_GainPosInq	8x 09 04 4C FF	V0 50 00 00 0p 0q FF	pq: Gain Position
CAM_BrightPosInq	8x 09 04 4D FF	V0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompPosInq	8x 09 04 4E FF	V0 50 00 00 0p 0q FF	pq: ExpComp Position
		V0 50 02 FF	Auto Focus
		V0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	V0 50 0p 0q 0r 0s FF	pqrs: Focus Position
zoom_Pos_Inq	8x 09 04 47 FF	V0 50 0p 0q 0r 0s FF	pqrs: Zoom Position
PT_Pos_Inq	8x 09 06 12 FF	y0 60 0y 0Y 0Y 0z 0Z 0z 0Z FF	YYYY: Pan Position ZZZZ: Tilt Position
CAM_Preset_Inq	8x 09 04 3F FF	V0 50 pp FF	Return the last preset number which has been operated pp:01-FF
CAM_Tracking status	8x 09 36 69 02 FF	V0 50 01 FF	On
		V0 50 00 FF	Off
		V0 50 01 FF	Presenter
CAM_Tracking_mode	8x 09 36 69 01 FF	V0 50 02 FF	Zone
		V0 50 03 FF	Hybrid
		V0 50 01 FF	Full body
		V0 50 02 FF	Upper body
CAM_OSD MENU on/off	8x 09 7E 04 76 01 FF	V0 50 02 FF	On
		V0 50 03 FF	Off
		V0 50 02 FF	On
CAM_Tally	8x 09 7E 01 0A FF	V0 50 03 FF	Off
		V0 50 02 FF	On
CAM_WDR mode	8x 09 04 3D FF	V0 50 02 FF	On
		V0 50 03 FF	Off
CAM_BLC mode	8x 09 04 33 FF	V0 50 02 FF	On
		V0 50 03 FF	Off
CAM_Live Freeze	8x 09 04 62 01 FF	V0 50 02 FF	Freeze On
		V0 50 03 FF	Freeze Off
CAM_Preset Freeze	8x 09 04 62 02 FF	V0 50 02 FF	Preset Freeze On
		V0 50 03 FF	Preset Freeze Off
Firmware version	8x 09 36 69 04 FF	V0 50 0p 0q 0r 0s 0t 0u 0v 0w FF	fw_ver: p,q,r,s,t,u,v,w
USB Status	8x 09 36 69 05 FF	V0 50 00 FF	USB cable plug out
		V0 50 01 FF	USB cable plug in
		V0 50 00 FF	UVC stream off
		V0 50 01 FF	UVC stream on

The x value = VISCA Camera ID: 1 to 7 for RS232/RS422 connection.

# Visca-over-IP Settings

VISCA over IP

## PORT

Internet protocol	IPv4
Transport protocol	UDP
Port address	52381

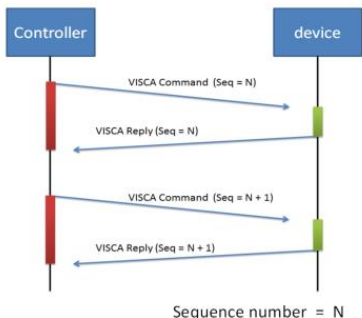
## FORMAT

	byte 0	byte 1	byte 2	byte 3	byte 4	byte 5	byte 6	byte 7	byte8 ~~~	byte23	
func	Payload type		Payload length		Sequence number			Payload (1 to 16 bytes)			
data	Value1	Value2	1~16 (0x0001~0x0010)		0X00000000 ~ 0XFFFFFFF			VISCA Packet (see page VISCA)			

## Payload type

Name	Value1	Value2	Description
VISCA command	0x01	0x00	Stores the VISCA command.
VISCA inquiry	0x01	0x10	Stores the VISCA inquiry.
VISCA reply	0x01	0x11	Stores the reply for the VISCA command or VISCA inquiry

## Sequence number



The x value of 8x should be 1 for Visca-over-IP string.

Example for Pan-Left command via IP: **01 00 00 09 00 00 00 01 81 01 06 01 07 07 01 03 FF**

# CGI Command Table

CGI List for Video Transmission					
CGI Item name	URL	Command	Parameter Name	Parameter value	Description
Get JPEG	/snapshot				1280x720.jpg
Get RTSP stream	rtsp://ip/live_sst1				
CGI List for Camera Control					
CGI Item name	URL	Command	Parameter Name	Parameter value	Description
up start	/cgi-bin?SetPzf=#	1,0,18,(random)			
up end	/cgi-bin?SetPzf=#	1,0,28,(random)			
down start	/cgi-bin?SetPzf=#	1,1,18,(random)			
down end	/cgi-bin?SetPzf=#	1,1,28,(random)			
left start	/cgi-bin?SetPzf=#	0,1,18,(random)			
left end	/cgi-bin?SetPzf=#	0,1,28,(random)			
right start	/cgi-bin?SetPzf=#	0,0,18,(random)			
right end	/cgi-bin?SetPzf=#	0,0,28,(random)			
zoom_in start	/cgi-bin?SetPzf=#	2,0,18,(random)			
zoom_in end	/cgi-bin?SetPzf=#	2,0,28,(random)			
zoom_out start	/cgi-bin?SetPzf=#	2,1,18,(random)			
zoom_out end	/cgi-bin?SetPzf=#	2,1,28,(random)			
set preset:	/cgi-bin?ActPreset=#	1,N&(random)			N : position
load preset:	/cgi-bin?ActPreset=#	0,N&(random)			N : position
set preset speed	/cgi-bin?Set=preset_speed,3,val	val: (min: 1, max: 6)			
Absolute Position (Pan)	/cgi-bin?Set=ptz_p,3,val	val: (min: 2048, mid: 962944, max: 1925888)			Follows CGI preset speed
Absolute Position (Tilt)	/cgi-bin?Set=ptz_t,3,val	val: (min: 2048, mid: 165696, max: 662784)			Follows CGI preset speed
(Zoom)	/cgi-bin?Set=ptz_z,3,val	val: (min: 2048, mid: 14224, max: 28448)			Follows CGI preset speed
CGI List for Various Settings					
exposure value	/cgi-bin?Set=#	img_expo,3,N&(random)	value	1 - 9	N : value
saturation	/cgi-bin?Set=#	img_saturation,3,N&(random)	value	0 - 10	N : value
contrast	/cgi-bin?Set=#	img_contrast,3,N&(random)	value	0 - 4	N : value
Tracking on:	/cgi-bin?Set=#	trk_tracking_on,3,1			
Tracking off:	/cgi-bin?Set=#	trk_tracking_on,3,0			
Reboot	GET(Basic Authentication)	/cgi-bin?OnPush=#			
Factory Reset	GET(Basic Authentication)	/cgi-bin?OnPush=#			
Mode Presenter		/cgi-bin?Set=trk_mode,3,1&X	value	random number	X : value
Mode Zone		/cgi-bin?Set=trk_mode,3,2&X	value	random number	X : value
Mode Hybrid		/cgi-bin?Set=trk_mode,3,3&X			
Mode Get	GET(Basic Authentication)	/cgi-bin?Get=trk_mode,3&_#X	Reply	Presenter trk_mode,3=1 Zone trk_mode,3=2 Hybrid trk_mode,3=3	X : value
Click Track ON	GET(Basic Authentication)	/cgi-bin?Set=trk_update_detect,3,1			
Click Track OFF	GET(Basic Authentication)	/cgi-bin?Set=trk_update_detect,3,0			
Click Track Get detect zone (Humanoid outlines) number	GET(Basic Authentication) - Reply	/cgi-bin?Get=trk_detect_num,3 trk_detect_num,3=X'v'n'	X: The amount of humanoid outlines. maximum: 50		Need to be sent along with Click Track ON command
Click Track Get detect zone (Humanoid outlines) info	GET(Basic Authentication) - Reply	/cgi-bin?GetTrackingDetectZone=X "tfocus=1v'zone[0]00,119,720,960v'zone[0]1-1502615204,-1366225632,01,-1366222954"	X: The amount of humanoid outlines. maximum: 50 focus - The number of humanoid outline being tracked. zone[N]:x,y,w,h - based on 1080P resolution The number following indicates the number of the tracked person, for example, -1 means that no one is being tracked. If one of the three is being tracked, one of 0, 1 and 2 will appear after the 'focus'.		
Click Track Set target zone	GET(Basic Authentication) - Reply GET(Basic Authentication) - Reply	/cgi-bin?Set=trk_assign_zone,3,X http response: ok /cgi-bin?SetString=TrackingFocusZone,[x,y,w,h] http response: ok	X: The number of the human outlines		
Tracking On/Off Get	GET(Basic Authentication)	/cgi-bin?Get=trk_tracking_on,3&_#X	Reply	On trk_tracking_on,3=1 Off trk_tracking_on,3=0"	X : value
RTMP Start streaming	/cgi-bin?Set=#	vdo_rtmp_enable,3,1			
RTMP Stop streaming	/cgi-bin?Set=#	vdo_rtmp_enable,3,0			