

PTZOptics VISCA over IP Commands

Older model PTZOptics cameras may not be compatible with all commands. For best compatibility, see <https://ptzoptics.com/firmware-finder/>

Command	Function	Command Package	Note
ACK/Completion	ACK	90 4y FF	Return when the command is accepted
	Completion	90 5y FF	Return when the command has been executed
Error Messages	Syntax Error	90 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is accepted
	Command Buffer Full	90 60 03 FF	Indicates that two sockets are already being used(executing two commands) and the command could not be accepted when received
	Command Canceled	90 6y 04 FF	Returned when a command which is being executed in a socket specified by the cancel command is canceled. The completion message for the command is not returned
	No Socket	90 6y 05 FF	Returned when no command is executed in a socket specified by the cancel command, or when an invalid socket number is specified
	Command Not Executable	90 6y 41 FF	Returned when a command cannot be executed due to current conditions. For example, when commands controlling the focus manually are received during auto focus
CAM_Zoom	Stop	81 01 04 07 00 FF	
	Tele (Standard)	81 01 04 07 02 FF	
	Wide (Standard)	81 01 04 07 03 FF	
	Tele (Variable)	81 01 04 07 2p FF	p = 0(low) - 7(high)
	Wide (Variable)	81 01 04 07 3p FF	
	Direct	81 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom Position (04 00 00 00 is zoomed all the way in, 00 00 00 00 is zoomed all the way out)
CAM_Focus	Stop	81 01 04 08 00 FF	
	Far (Standard)	81 01 04 08 02 FF	
	Near (Standard)	81 01 04 08 03 FF	
	Far (Variable)	81 01 04 08 2p FF	p = 0(low) - 7(high)
	Near (Variable)	81 01 04 08 3p FF	
	Direct	81 01 04 48 0p 0q 0r 0s FF	pqrs: Focus Position
	Auto Focus	81 01 04 38 02 FF	
	Manual Focus	81 01 04 38 03 FF	AF On/Off
	Auto/Manual	81 01 04 38 10 FF	
	Focus Lock	81 0a 04 68 02 FF	Prevents any other operation or command from adjusting the current focus state
CAM_WB	Focus Unlock	81 0a 04 68 03 FF	
	Auto	81 01 04 35 00 FF	Normal Auto
	Indoor Mode	81 01 04 35 01 FF	Indoor mode
	Outdoor Mode	81 01 04 35 02 FF	Outdoor mode
	OnePush Mode	81 01 04 35 03 FF	One Push WB mode
	Manual	81 01 04 35 05 FF	Manual Control mode
CAM_RGain	OnePush Trigger	81 01 04 10 05 FF	One Push WB Trigger
	Reset	81 01 04 03 00 FF	
	Up	81 01 04 03 02 FF	Manual Control of R Gain
	Down	81 01 04 03 03 FF	
CAM_BGain	Direct	81 01 04 43 00 00 0p 0q FF	pq: R Gain
	Reset	81 01 04 04 00 FF	
	Up	81 01 04 04 02 FF	Manual Control of B Gain
	Down	81 01 04 04 03 FF	
CAM_AE	Direct	81 01 04 44 00 00 0p 0q FF	pq: B Gain
	Full Auto	81 01 04 39 00 FF	Automatic Exposure mode
	Manual	81 01 04 39 03 FF	Manual Control mode
	Shutter Priority	81 01 04 39 0A FF	Shutter Priority Automatic Exposure mode
	Iris Priority	81 01 04 39 0B FF	Iris Priority Automatic Exposure mode
CAM_Iris	Bright	81 01 04 39 0D FF	Bright Mode(Manual control)
	Reset	81 01 04 0B 00 FF	
	Up	81 01 04 0B 02 FF	Iris Setting
	Down	81 01 04 0B 03 FF	
CAM_Shutter	Direct	81 01 04 4B 00 00 0p 0q FF	pq: Iris Position
	Reset	81 01 04 0A 00 FF	Default Shutter setting
	Up	81 01 04 0A 02 FF	
CAM_Backlight	Down	81 01 04 0A 03 FF	
	Direct	81 01 04 4A 00 00 0p 0q FF	pq: Shutter Position
CAM_Flicker	On	81 01 04 33 02 FF	Back Light Compensation On/Off
	Off	81 01 04 33 03 FF	
CAM_PictureEffect	-	81 01 04 23 0p FF	p: Flicker Settings - (0: Off, 1: 50Hz, 2: 60Hz)
	Off	81 01 04 63 00 FF	
CAM_Memory	B&W	81 01 04 63 04 FF	Picture Effect Setting
	Reset	81 01 04 3F 00 pp FF	
	Set	81 01 04 3F 01 pp FF	pp: Memory Number(=0 to 127)
Preset Recall Speed	Recall	81 01 04 3F 02 pp FF	
CAM_LR_Reverse	Preset Speed	81 01 06 01 p FF	p is speed grade,the values are (0x1-0x18)
	On	81 01 04 61 02 FF	Image Flip Horizontal On/Off
CAM_PictureFlip	Off	81 01 04 61 03 FF	
	On	81 01 04 66 02 FF	Image Flip Vertical On/Off
Pan_TiltDrive	Off	81 01 04 66 03 FF	
	Up	81 01 06 01 VV WW 03 01 FF	
	Down	81 01 06 01 VV WW 03 02 FF	
	Left	81 01 06 01 VV WW 01 03 FF	
	Right	81 01 06 01 VV WW 02 03 FF	
	UpLeft	81 01 06 01 VV WW 01 01 FF	
	UpRight	81 01 06 01 VV WW 02 01 FF	VV: Pan speed 0x01 (low speed) to 0x18 (high speed)
	DownLeft	81 01 06 01 VV WW 01 02 FF	WW: Tilt speed 0x01 (low speed) to 0x14 (high speed)
	DownRight	81 01 06 01 VV WW 02 02 FF	
	Stop	81 01 06 01 VV WW 03 03 FF	
	AbsolutePosition	81 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	YYYY: Pan Position ZZZZ: Tilt Position
	RelativePosition	81 01 06 03 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	YYYY: Pan Position ZZZZ: Tilt Position
	Home	81 01 06 04 FF	
Reset	81 01 06 05 FF		
CAM_Brightness	Direct	81 01 04 A1 00 00 0p 0q FF	pq: Brightness Position
CAM_Flip	Direct	81 01 04 A2 00 00 0p 0q FF	pq: Contrast Position
	Off	81 01 04 A4 00 FF	
	Flip-H	81 01 04 A4 01 FF	Single Command For Video Flip
	Flip-V	81 01 04 A4 02 FF	
CAM_SettingSave	Flip-HV	81 01 04 A4 03 FF	
	Save	81 01 04 A5 10 FF	Save Current Setting
	High	81 01 04 A9 00 FF	High
CAM_AWBSensitivity	Normal	81 01 04 A9 01 FF	Normal
	Low	81 01 04 A9 02 FF	Low
	Top	81 01 04 AA 00 FF	
CAM_AFZone	Center	81 01 04 AA 01 FF	AF Zone weight select
	Bottom	81 01 04 AA 02 FF	
	Direct	81 01 04 4F 00 00 0p 0q FF	p: Color Hue setting 0h (~ 14 dgree) to Eh (+14 degrees)
OSD_Control	Open / Close	81 01 04 3F 02 5F FF	
	Navigate Up	81 01 06 01 0E 0E 03 01 FF	
	Navigate Down	81 01 06 01 0E 0E 03 02 FF	
	Navigate Left	81 01 06 01 0E 0E 01 03 FF	
	Navigate Right	81 01 06 01 0E 0E 02 03 FF	
	Enter	81 01 06 06 05 FF	
	Return	81 01 06 06 04 FF	

PTZOptics VISCA over IP Commands

Command	Command Package	Return Package	Note
CAM_ZoomPosInq	81 09 04 47 FF	90 50 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_FocusAFModelInq	81 09 04 38 FF	90 50 02 FF 90 50 03 FF	Auto Focus Manual Focus
CAM_FocusPosInq	81 09 04 48 FF	90 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_WBModelInq	81 09 04 35 FF	90 50 00 FF 90 50 01 FF 90 50 02 FF 90 50 03 FF 90 50 05 FF	Auto Indoor mode Outdoor mode OnePush mode Manual
CAM_RGainInq	81 09 04 43 FF	90 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	81 09 04 44 FF	90 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModelInq	81 09 04 39 FF	90 50 00 FF 90 50 03 FF 90 50 0A FF 90 50 0B FF 90 50 0D FF	Full Auto Manual Shutter priority (SAE) Iris priority (AAE) Bright
CAM_ShutterPosInq	81 09 04 4A FF	90 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	81 09 04 4B FF	90 50 00 00 0p 0q FF	pq: Iris Position
CAM_BrightPosInq	81 09 04 4D FF	90 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompModelInq	81 09 04 3E FF	90 50 02 FF 90 50 03 FF	On Off
CAM_ExpCompPosInq	81 09 04 4E FF	90 50 00 00 0p 0q FF	pq: ExpComp Position
CAM_BacklightModelInq	81 09 04 33 FF	90 50 02 FF 90 50 03 FF	On Off
CAM_Noise2DModelInq	81 09 04 50 FF	90 50 02 FF 90 50 03 FF	Auto Noise 2D Manual Noise 2D
CAM_Noise2DLevel	81 09 04 53 FF	90 50 0p FF	Noise Reduction (2D) p: 0 to 5
CAM_Noise3DLevel	81 09 04 54 FF	90 50 0p FF	Noise Reduction (3D) p: 0 to 8
CAM_FlickerModelInq	81 09 04 55 FF	90 50 0p FF	p: Flicker Settings(0: OFF, 1: 50Hz, 2: 60Hz)
CAM_ApertureModelInq (Sharpness)	81 09 04 05 FF	90 50 02 FF 90 50 03 FF	Auto Sharpness Manual Sharpness
CAM_ApertureInq (Sharpness)	81 09 04 42 FF	90 50 00 00 0p 0q FF	pq: Aperture Gain
CAM_PictureEffectModelInq	81 09 04 63 FF	90 50 02 FF 90 50 04 FF	Off B&W
CAM_LR_ReverseInq	81 09 04 61 FF	90 50 02 FF 90 50 03 FF	On Off
CAM_PictureFlipInq	81 09 04 66 FF	90 50 02 FF 90 50 03 FF	On Off
CAM_ColorGainInq	81 09 04 49 FF	90 50 00 00 00 0p FF	p: Color Gain setting 0h (60%) to Eh (200%)
CAM_PanTiltPosInq	81 09 06 12 FF	90 50 0w 0x 0y 0z 0z 0z 0z 0z FF	www: Pan Position zzzz: Tilt Position
CAM_GainLimitInq	81 09 04 2C FF	90 50 0q FF 90 50 01 FF	p: Gain Limit High
CAM_AFSensitivityInq	81 09 04 58 FF	90 50 02 FF 90 50 03 FF	Normal Low
CAM_BrightnessInq	81 09 04 A1 FF	90 50 00 00 0p 0q FF	pq: Brightness Position
CAM_ContrastInq	81 09 04 A2 FF	90 50 00 00 0p 0q FF	pq: Contrast Position
CAM_FlipInq	81 09 04 A4 FF	90 50 00 FF 90 50 01 FF 90 50 02 FF 90 50 03 FF	Off Flip-H Flip-V Flip-HV
CAM_AFZone	81 09 04 AA FF	90 50 00 FF 90 50 01 FF 90 50 02 FF	Top Center Bottom
CAM_ColorHueInq	81 09 04 4F FF	90 50 00 00 00 0p FF 90 50 00 FF 90 50 01 FF 90 50 02 FF	p: Color Hue setting 0h (~ 14 degrees) to Eh (+14 degrees) High Normal Low
CAM_AWBSensitivityInq	81 09 04 A9 FF	90 50 00 FF 90 50 01 FF 90 50 02 FF	High Normal Low

PTZOptics VISCA Command Limitations

Direct Shutter Values	p,q values	CAM Memory	p,q values	CAM Memory	p,q values
1/30	0,1	Preset 0	0,0	Preset 32	2,0
1/60	0,2	Preset 1	0,1	Preset 33	2,1
1/90	0,3	Preset 2	0,2	Preset 34	2,2
1/100	0,4	Preset 3	0,3	Preset 35	2,3
1/125	0,5	Preset 4	0,4	Preset 36	2,4
1/180	0,6	Preset 5	0,5	Preset 37	2,5
1/250	0,7	Preset 6	0,6	Preset 38	2,6
1/350	0,8	Preset 7	0,7	Preset 39	2,7
1/500	0,9	Preset 8	0,8	Preset 40	2,8
1/725	0,A	Preset 9	0,9	Preset 41	2,9
1/1000	0,B	Preset 10	0,A	Preset 42	2,A
1/1500	0,C	Preset 11	0,B	Preset 43	2,B
1/2000	0,D	Preset 12	0,C	Preset 44	2,C
1/3000	0,E	Preset 13	0,D	Preset 45	2,D
1/4000	0,F	Preset 14	0,E	Preset 46	2,E
1/6000	1,0	Preset 15	0,F	Preset 47	2,F
1/10000	1,1	Preset 16	1,0	Preset 48	3,0
Direct Iris Values	p,q values	Preset 17	1,1	Preset 49	3,1
Close	0,0 : 0,3	Preset 18	1,2	Preset 50	3,2
F11	0,6	Preset 19	1,3	Preset 51	3,3
F9.6	0,7	Preset 20	1,4	Preset 52	3,4
F8.0	0,8	Preset 21	1,5	Preset 53	3,5
F6.8	0,9	Preset 22	1,6	Preset 54	3,6
F5.6	0,A	Preset 23	1,7	Preset 55	3,7
F4.8	0,B	Preset 24	1,8	Preset 56	3,8
F4.0	0,C	Preset 25	1,9	Preset 57	3,9
F3.4	0,D	Preset 26	1,A	Preset 58	3,A
F2.8	0,E	Preset 27	1,B	Preset 59	3,B
F2.4	0,F	Preset 28	1,C	Preset 60	3,C
F2.0	1,0	Preset 29	1,D	Preset 61	3,D
F1.8	1,1	Preset 30	1,E	Preset 62	3,E
Exp Comp Values	p,q values	Preset 31	1,F	Preset 63	3,F
-7	0,0	Gain Values	p,q values		
-6	0,1	0	0,0		
-5	0,2	1	0,1		
-4	0,3	2	0,2		
-3	0,4	3	0,3		
-2	0,5	4	0,4		
-1	0,6	5	0,5		
0	0,7	6	0,6		
1	0,8	7	0,7		
2	0,9				
3	0,A				
4	0,B				
5	0,C				
6	0,D				
7	0,E				

PTZOptics VISCA Command Limitations

Values for Direct R and B values	p,q values	Values for Direct R and B values	p,q values	Values for Direct R and B values	p,q values	Values for Direct R and B values	p,q values
0	0,0	64	4,0	128	8,0	192	C,0
1	0,1	65	4,1	129	8,1	193	C,1
2	0,2	66	4,2	130	8,2	194	C,2
3	0,3	67	4,3	131	8,3	195	C,3
4	0,4	68	4,4	132	8,4	196	C,4
5	0,5	69	4,5	133	8,5	197	C,5
6	0,6	70	4,6	134	8,6	198	C,6
7	0,7	71	4,7	135	8,7	199	C,7
8	0,8	72	4,8	136	8,8	200	C,8
9	0,9	73	4,9	137	8,9	201	C,9
10	0,A	74	4,A	138	8,A	202	C,A
11	0,B	75	4,B	139	8,B	203	C,B
12	0,C	76	4,C	140	8,C	204	C,C
13	0,D	77	4,D	141	8,D	205	C,D
14	0,E	78	4,E	142	8,E	206	C,E
15	0,F	79	4,F	143	8,F	207	C,F
16	1,0	80	5,0	144	9,0	208	D,0
17	1,1	81	5,1	145	9,1	209	D,1
18	1,2	82	5,2	146	9,2	210	D,2
19	1,3	83	5,3	147	9,3	211	D,3
20	1,4	84	5,4	148	9,4	212	D,4
21	1,5	85	5,5	149	9,5	213	D,5
22	1,6	86	5,6	150	9,6	214	D,6
23	1,7	87	5,7	151	9,7	215	D,7
24	1,8	88	5,8	152	9,8	216	D,8
25	1,9	89	5,9	153	9,9	217	D,9
26	1,A	90	5,A	154	9,A	218	D,A
27	1,B	91	5,B	155	9,B	219	D,B
28	1,C	92	5,C	156	9,C	220	D,C
29	1,D	93	5,D	157	9,D	221	D,D
30	1,E	94	5,E	158	9,E	222	D,E
31	1,F	95	5,F	159	9,F	223	D,F
32	2,0	96	6,0	160	A,0	224	E,0
33	2,1	97	6,1	161	A,1	225	E,1
34	2,2	98	6,2	162	A,2	226	E,2
35	2,3	99	6,3	163	A,3	227	E,3
36	2,4	100	6,4	164	A,4	228	E,4
37	2,5	101	6,5	165	A,5	229	E,5
38	2,6	102	6,6	166	A,6	230	E,6
39	2,7	103	6,7	167	A,7	231	E,7
40	2,8	104	6,8	168	A,8	232	E,8
41	2,9	105	6,9	169	A,9	233	E,9
42	2,A	106	6,A	170	A,A	234	E,A
43	2,B	107	6,B	171	A,B	235	E,B
44	2,C	108	6,C	172	A,C	236	E,C
45	2,D	109	6,D	173	A,D	237	E,D
46	2,E	110	6,E	174	A,E	238	E,E
47	2,F	111	6,F	175	A,F	239	A,F
48	3,0	112	7,0	176	B,0	240	F,0
49	3,1	113	7,1	177	B,1	241	F,1
50	3,2	114	7,2	178	B,2	242	F,2
51	3,3	115	7,3	179	B,3	243	F,3
52	3,4	116	7,4	180	B,4	244	F,4
53	3,5	117	7,5	181	B,5	245	F,5
54	3,6	118	7,6	182	B,6	246	F,6
55	3,7	119	7,7	183	B,7	247	F,7
56	3,8	120	7,8	184	B,8	248	F,8
57	3,9	121	7,9	185	B,9	249	F,9
58	3,A	122	7,A	186	B,A	250	F,A
59	3,B	123	7,B	187	B,B	251	F,B
60	3,C	124	7,C	188	B,C	252	F,C
61	3,D	125	7,D	189	B,D	253	F,D
62	3,E	126	7,E	190	B,E	254	F,E
63	3,F	127	7,F	191	B,F	255	F,F