

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_Power	On	81 01 04 00 02 FF	Power ON/OFF	
	Off	81 01 04 00 03 FF		
CAM_Zoom	Stop	81 01 04 07 00 FF	$p = 0(\text{low}) - 7(\text{high})$ pqrs: Zoom Position (0x04 0x00 0x00 0x00 is zoomed all the way in, 0x00 0x00 0x00 0x00 is zoomed all the way out)	
	Tele (Standard)	81 01 04 07 02 FF		
	Wide (Standard)	81 01 04 07 03 FF		
	Tele (Variable)	81 01 04 07 2p FF		
	Wide (Variable)	81 01 04 07 3p FF		
CAM_Focus	Direct	81 01 04 47 p q r s FF		
	Stop	81 01 04 08 00 FF	$p = 0(\text{low}) - 7(\text{high})$ pqrs: Focus Position	
	Far (Standard)	81 01 04 08 02 FF		
	Near (Standard)	81 01 04 08 03 FF		
	Far (Variable)	81 01 04 08 2p FF		
	Near (Variable)	81 01 04 08 3p FF		
	Direct	81 01 04 48 0p 0q 0r 0s FF		
	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	
	ColorTemperature	81 01 04 35 20 FF	Color Temperature mode	
CAM_RGain	OnePush Trigger	81 01 04 10 05 FF	One Push WB Trigger	
	Reset	81 01 04 03 00 FF	Default Red Gain setting	
	Up	81 01 04 03 02 FF		
	Down	81 01 04 03 03 FF		
Direct	81 01 04 43 00 00 0p 0q FF	pq: R Gain		
CAM_BGain	Reset	81 01 04 04 00 FF	Default Blue Gain settings	
	Up	81 01 04 04 02 FF		
	Down	81 01 04 04 03 FF		
	Direct	81 01 04 44 00 00 0p 0q FF		pq: B Gain
CAM_ColorTemp	Reset	81 01 04 20 00 FF	Default ColorTemperature setting	
	Up	81 01 04 20 02 FF		
	Down	81 01 04 20 03 FF		
	Direct	81 01 04 20 0p 0q FF		pq: Color Temperature position 0x00: 2500K ~ 0x37: 8000K
CAM_AE	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	Default Iris setting	
	Up	81 01 04 0B 02 FF		
	Down	81 01 04 0B 03 FF		
Direct	81 01 04 4B 00 00 0p 0q FF	pq: Iris Position		
CAM_Shutter	Reset	81 01 04 0A 00 FF	Default Shutter setting	
	Up	81 01 04 0A 02 FF		
	Down	81 01 04 0A 03 FF		
	Direct	81 01 04 4A 00 00 0p 0q FF		pq: Shutter Position
CAM_Gain	Reset	81 01 04 0C 00 FF	Gain Setting	
	Up	81 01 04 0C 02 FF		
	Down	81 01 04 0C 03 FF		
	Direct	81 01 04 0C 00 00 0p 0q FF		pq: Gain Position
CAM_Bright	Gain Limit	81 01 04 2C 0p FF	p: Gain Position	
	Reset	81 01 04 0D 00 FF	Default Bright setting	
	Up	81 01 04 0D 02 FF		
	Down	81 01 04 0D 03 FF		
Direct	81 01 04 0D 00 00 0p 0q FF	pq: Bright Position		
CAM_ExpComp	On	81 01 04 3E 02 FF	Exposure Compensation On/Off	
	Off	81 01 04 3E 03 FF		
	Reset	81 01 04 0E 00 FF		Default ExpComp setting
	Up	81 01 04 0E 02 FF		
	Down	81 01 04 0E 03 FF		
Direct	81 01 04 4E 00 00 0p 0q FF	pq: ExpComp position		
CAM_Backlight	On	81 01 04 33 02 FF	Back Light Compensation On/Off	
	Off	81 01 04 33 03 FF		
CAM_Flicker	-	81 01 04 23 0p FF	p: Flicker Settings - (0: Off, 1: 50Hz, 2: 60Hz)	
CAM_ApertureMode(Sharpness)	Auto	81 01 04 05 02 FF	Sharpness Auto	
	Manual	81 01 04 05 03 FF	Sharpness Manual	
CAM_Aperture(sharpness)	Reset	81 01 04 02 00 FF	Aperture Control	
	Up	81 01 04 02 02 FF		
	Down	81 01 04 02 03 FF		
	Direct	81 01 04 42 00 00 0p 0q FF		pq: Aperture Gain
CAM_PictureEffect	Off	81 01 04 63 00 FF	Picture Effect Setting	
	B&W	81 01 04 63 04 FF		

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CAM_Memory	Reset	81 01 04 3F 00 pp FF	
	Set	81 01 04 3F 01 pp FF	pp: Memory Number(=0 to 127)
	Recall	81 01 04 3F 02 pp FF	
Preset Recall Speed	Preset Speed	81 01 06 01 pp FF	pp: speed grade,the values are (0x01~0x18)
CAM_LR_Reverse	On	81 01 04 61 02 FF	
	Off	81 01 04 61 03 FF	Image Flip Horizontal On/Off
CAM_PictureFlip	On	81 01 04 66 02 FF	
	Off	81 01 04 66 03 FF	Image Flip Vertical On/Off
CAM_ColorGain	Direct	81 01 04 49 00 00 0p FF	p: Color Gain setting 0h (60%) to Eh (200%)
Pan_TiltDrive	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 0Z 0Z 0Z FF	YYYY: Pan Position ZZZZ: Tilt Position
	RelativePosition	81 01 06 03 VV WW 0Y 0Y 0Y 0Z 0Z 0Z FF	YYYY: Pan Position ZZZZ: Tilt Position
Home	81 01 06 04 FF		
Reset	81 01 06 05 FF		
Pan_TiltLimitSet	LimitSet	81 01 06 07 00 0W 0Y 0Y 0Y 0Y 0Z 0Z 0Z FF	W: 1 UpRight 0: DownLeft YYYY: Pan Limit Position
	LimitClear	81 01 06 07 01 0W	ZZZZ: Tilt Limit Position
		07 0F 0F 0F 07 0F 0F 0F FF	
CAM_Brightness	Direct	81 01 04 A1 00 00 0p 0q FF	pq: Brightness Position
CAM_Contrast	Direct	81 01 04 A2 00 00 0p 0q FF	pq: Contrast Position
CAM_Flip	Off	81 01 04 A4 00 FF	
	Flip-H	81 01 04 A4 01 FF	
	Flip-V	81 01 04 A4 02 FF	
	Flip-HV	81 01 04 A4 03 FF	Single Command For Video Flip
CAM_SettingSave	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
CAM_AFZone	Top	81 01 04 AA 00 FF	
	Center	81 01 04 AA 01 FF	AF Zone weight select
	Bottom	81 01 04 AA 02 FF	
CAM_ColorHue	Direct	81 01 04 4F 00 00 0p 0p FF	p: Color Hue setting 0h (- 14 drees) to Eh (+ 14 degrees)
CAM OSD	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	
CAM_AFCalibration	Re-Calibrates Focus	81 0A 01 03 10 FF	Corrects camera focus capabilities
CAM_TallyLight	Tally Light Control	81 0A 02 02 0p FF	p=1: Flashing, p=2: Light always on, p=3: normal
CAM_NDI Mode	High	81 0B 01 01 FF	
	Medium	81 0B 01 02 FF	
	Low	81 0B 01 03 FF	
CAM_MulticastMode	Off	81 0B 01 04 FF	
CAM_PTZMotionSync	Multicast Mode	81 0B 01 23 0p FF	p=1: On, p=2: Off
	PTZ Motion Sync On	81 0A 11 13 02 FF	
	PTZ Motion Sync Off	81 0A 11 13 03 FF	
	PTZ MS Upper Speed Limi	81 0A 11 14 pq FF	
CAM_UACStatus	PTZ MS Lower Speed Limi	81 0A 11 14 pq FF	pq: speed stage
	Toggle USB Audio	81 2a 02 a0 04 0p ff	p=2: On, p=3: Off

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	Auto Focus
		90 50 03 FF	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	Auto
		90 50 01 FF	Indoor mode
		90 50 02 FF	Outdoor mode
		90 50 03 FF	OnePush mode
		90 50 05 FF	Manual mode
		90 50 20 FF	Color/Temperature mode
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_ColorTempInq	81 09 04 20 FF	90 50 pq FF	pq: Color Temperature position
CAM_AEModeInq	81 09 04 39 FF	90 50 00 FF	Full Auto
		90 50 03 FF	Manual
		90 50 0A FF	Shutter priority (SAE)
		90 50 0B FF	Iris priority (AAE)
		90 50 0D FF	Bright
CAM_ShutterPosInq	81 09 04 4A FF	90 50 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	81 09 04 4B FF	90 50 0p 0q FF	pq: Iris Position
CAM_BrightPosInq	81 09 04 4D FF	90 50 0p 0q FF	pq: Bright Position
CAM_ExpCompModelInq	81 09 04 3E FF	90 50 02 FF	On
		90 50 03 FF	Off
CAM_ExpCompPosInq	81 09 04 4E FF	90 50 00 00 0p 0q FF	pq: ExpComp Position

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CAM_BacklightModelnq	81 09 04 33 FF	90 50 02 FF 90 50 03 FF	On Off
CAM_Noise2DModelnq	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_FlickerModelnq	81 09 04 55 FF	90 50 0p FF	p: Flicker Settings(0: OFF, 1: 50Hz, 2: 60Hz)
CAM_ApertureModelnq (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
SYS_MenuModelnq	81 09 06 06 FF	90 50 02 FF 90 50 03 FF	On Off
CAM_PictureEffectModelnq	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 0w 0w 0w 0z 0z 0z 0z FF	www: Pan Position zzz: 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	Off
		90 50 01 FF	Flip-H
		90 50 02 FF	Flip-V
		90 50 03 FF	Flip-HV
CAM_AFZone	81 09 04 AA FF	90 50 00 FF	Top
		90 50 01 FF	Center
		90 50 02 FF	Bottom
CAM_ColorHueInq	81 09 04 4F FF	90 50 00 00 00 0p FF 90 50 00 FF	p: Color Hue setting 0h (- 14 drees) to Eh (+14 degrees) High
CAM_AWBSensitivityInq	81 09 04 A9 FF	90 50 01 FF	Normal
		90 50 02 FF	Low
CAM_UACInq	81 2A 02 A0 04 FF	90 50 02 FF	On
		90 50 03 FF	Off

Command	Command Package	Return Package	Note
CAM_LensBlockInq	81 09 7E 7E 00 FF	90 50 0u 0u 0u 0u 00 00 0v 0v 0v 0v 00 0w 00 FF	uuuu: Zoom position vvvv: Focus position w.bit0: Focus mode 1: Auto, 0: Manual
CAM_CameraBlockInq	81 09 7E 7E 01 FF	90 50 0p 0p 0q 0q 0r 0s tt 0u vv ww 00 xx 0z FF	pp: R_Gain qq: B_Gain r: WB Mode s: Aperture tt: AE Mode u.bit2: Backlight u.bit1: Exposure Comp vv: Shutter position ww: Iris position xx: Bright position z: Exposure Comp position
CAM_OtherBlockInq	81 09 7E 7E 02 FF	90 50 0p 0q 00 0r 00 00 00 00 00 00 00 00 FF	p.bit0: Power 1: On, 0: Off q.bit2: LR Reverse 1: On, 0: Off r.bit3~0: Picture Effect Mode
CAM_EnlargmentBlockInq	81 09 7E 7E 03 FF	90 50 00 00 00 00 00 00 00 0p 0q rr 0s 0t 0u FF	p: AF sensitivity q.bit0: Picture flip 1: On, 0: Off rr.bit6~3: Color Gain (0h (60%) to Eh (200%)) s: Flip 0: Off, 1: Flip-H, 2: FlipV, 3: FlipHV t.bit2~0: NR2D Level u: Gain limit