PTZ-X20-IP

Full HD 20X Optical Zoom IP PTZ

V1.0

AIDA

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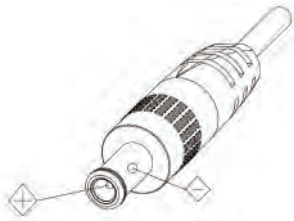
*The information within this manual is subject to change at any time without prior notice**

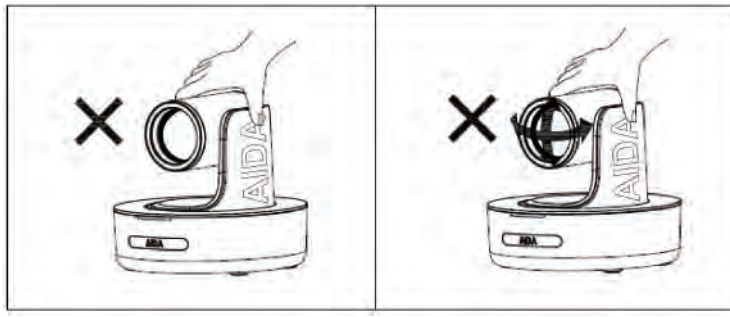
Safety Guide

1. Before operation, please read all of the instructions in the manual carefully. For your convenience, please keep this manual.
2. The camera power input range is 100-240VACv (50-60Hz). Ensure the power supply input is within this rate before powering on.
3. Camera power voltage = 12VDC, rated currency = 2A. We suggest you use it with the original power supply adapter supplied by the factory.
4. Please keep the power cable, video cable, and control cable in a safe place and out of obstructions.
5. Operational environment: 0°C-50°C/32°F-122°F, with humidity levels less than 90%. To avoid any damage, do no put or pour anything inside the camera.
6. Avoid weight stress, vibration, and pressure on the camera during transportation, storage, and installation.
7. Do not remove the camera housing and cover. For service, please contact our support line.
8. Do not direct the camera towards strong/intensive light. Doing so could cause irreversible damage to the camera and void warranty.
9. Use a dry and soft cloth to clean the camera housing with a neutral cleaning agent, when needed. To avoid damage on the camera lens, do not use strong or abrasive cleaning agents on the camera housing.
10. Do not move the camera by moving the camera head. To avoid mechanical trouble, do not rotate the camera head by hand. Please refrain from moving the camera while it is in motion. Doing so could cause irreversible damage to the camera and void warranty.
11. Make sure the camera is on a fixed and smooth platform. Avoid any slanted placements unless bolted with the standard issued mount.
12. Power Supply Polarity Schematics:



⚠ Warning:

Video quality can be affected by specific frequencies of electromagnetic field.
Never grasp the head of the camera. Never move the camera by hand while is in motion.
Doing so can damage the mechanism.



Packing List

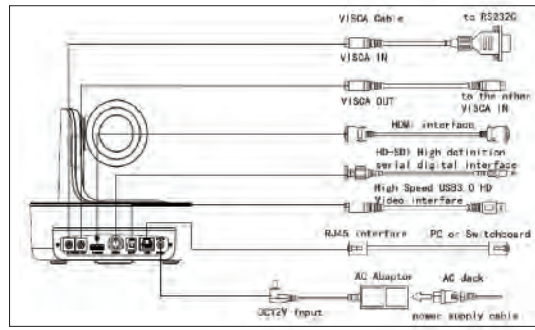
Check the items below, when opening the package:

1 EA

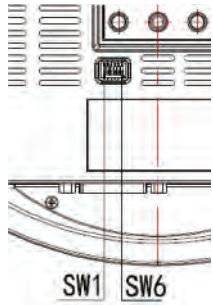
- AIDA PTZ-X20-IP
- Power Adapter
- Power Cable
- RS-232 Control Cable
- USB 3.0 Cable
- Remote Control
- User Manual
- Double Sided Adhesive
- QC Certification
- Wall Mount

Quick Start

1. Check that all cable connections are secure before powering on the camera.



2. Dial Switch Setting (Used for Camera Updates):



Dial Switch (ARM)			
	SW-1	SW-2	Mode
1	OFF	OFF	Updating Mode
2	ON	OFF	Debugging Mode
3	OFF	ON	Undefined
4	ON	ON	Working Mode

Dial Switch			
	SW-3	SW-4	Instruction
1	OFF	OFF	Reserve
2	ON	OFF	Reserve
3	OFF	ON	Reserve
4	ON	ON	Reserve

Dial Switch (USB)			
	SW-5	SW-6	Instruction
1	OFF	OFF	Undefined
2	ON	OFF	Working Mode
3	OFF	ON	Updating Mode
4	ON	ON	Undefined

Product Highlights

- Contains an advanced Sony ISP (1/2.85" progressive CMOS sensor) providing 1920x1080 Ultra HD resolution.
- Wide angle optical lens: 20x optical zoom, with a standard 61° field of view.
- Full HD video over IP, via H.264 or H.265 encoding.
- Contains traditional outputs such as HDMI, SDI, USB 3.0, as well as RJ-45 for RTSP/RTMP streaming.
- Fully adjustable camera settings, such as White Balance, Exposure Settings, and Image Parameters.
- Supports POE: use a single CAT 5/6 cable to control and output video via the RJ-45 port.
- Special Focusing Algorithm: fast and precise focusing performance when zooming or moving the camera head.
- Smooth PTZ movements, as well as little to no motor sound when moving.
- Supports 10 presets via remote or 128 presets via RS-232 or online interface.
- Standard Sony Serial VISCA, IP VISCA protocol, as well as IP VISCA over UDP.
- Daisy chain is supported via the RS-232 input and output, controlling a maximum of 7 cameras.
- Menu based image parameters, including image flip for ceiling mounted cameras.
- Remote has multiple functions, such as fast switching video formats and ability to change IP address.
- Free firmware updates to keep the camera up to date with the latest and greatest!
- The USB 3.0 port is compatible with USB 2.0 and allows standard UVC 1.5 protocol for local control. UVC control works seamlessly with many well-known conferencing software.
- Supports multiple IR sensor compatibility, so you can use multiple remotes besides the issued one.
- OSD menu languages are in English and Spanish.

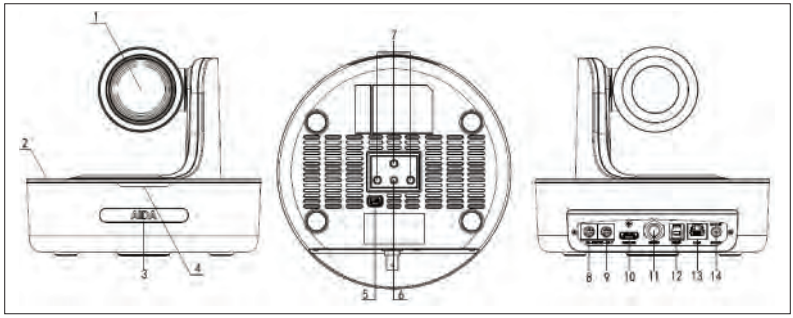
Camera Specs

Video Format	HDMI (V 1.4)	1920 x 1080 60p/59.94p/50p/30p/29.97p/25p/24p/23.98 1920 x 1080 60i/59.94i/50i 1280 x 720 60p/59.94p/50p/30p/29.97p/25p
	SDI	1920 x 1080 60p/59.94p/50p/30p/29.97p/25p/24p/23.98 1920 x 1080 60i/59.94i/50i 1280 x 720 60p/59.94p/50p/30p/29.97p/25p
	USB	1920 x 1080 60p/50p/30p/25p (USB 3.0) 1280 x 720 60p/50p/30p (USB 3.0) 1280 x 720 25p (USB 3.0 & 2.0) 1024 x 576 30p (USB 3.0 & 2.0) 960 x 540 30p (USB 2.0) 640 x 360 30p (USB 2.0) 512 x 288 30p (USB 2.0)
	RJ-45	1920 x 1080 @ 1~60 1280x 720 @ 1~60 (Main Stream) 1280 x 720 @ 1~60 / 1027 x 576 @ 1~60 / 640 x 360 @ 1~60 (Sub Stream)

Camera Specs (CONTD)

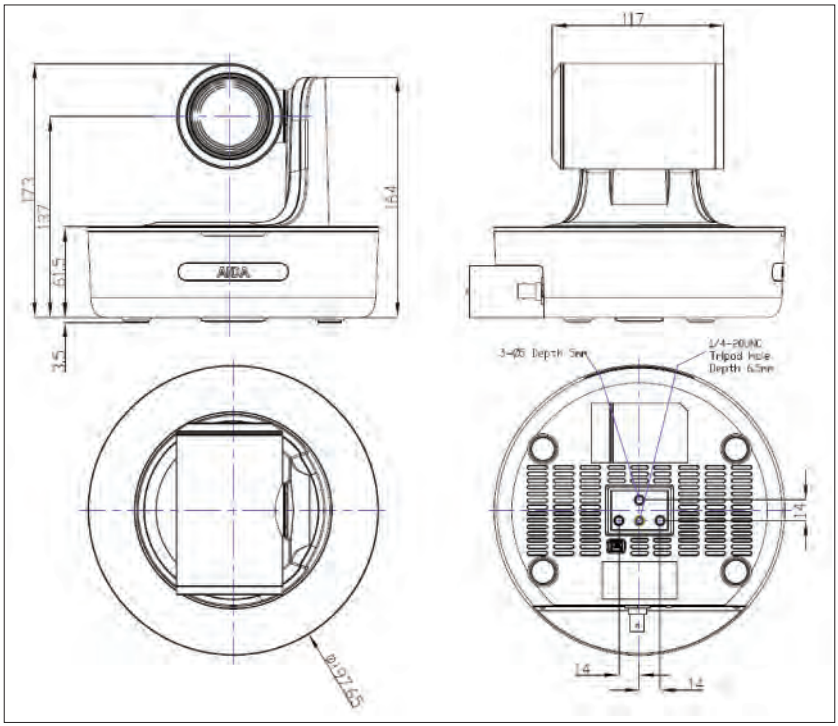
Video Interface	HDMI (V 1.4) 3G-SDI, RJ-45, USB 3.0
Sensor	1/2.85" Progressive CMOS sensor
Zoom	20x Optical Zoom
Lens	F4.9~98mm (20x), F1.5-3.0, View Angle:61°(Far)-3.2°(Near)
Rotation Angle	Pan: -170°~+170°; Tilt: -30°~+90°
Rotation Speed	Pan: 0°~120°/s; Tilt: 0°~80°/s
Preset	Remote Controller: 10 RS-232: 128
Control Port	RS-232, RJ-45 (VISCA over IP), USB 3.0 (UVC 1.5), USB 2.0 (UVC 1.1)
Network Speed	1000M
Video Encode	H.264/H.265 (default: H.264)
Bit Rate Control	Variable Bit Rate, Constant Bit Rate
Video Bit Rate	1024 kbps(min)~20480 kbps(max)
IP Protocol	IP, HTTP, RTSP, RTMP, DCHP, ONVIF, VISCA over IP (UDP)
POE	Supported (IEEE802.3af)
Daisy Chain	Support RS-232 serial daisy chain
Minimum Lux	0.01 Lux
White Balance	Auto/Indoor/Outdoor/Manual/ATW/One Push/Fluorescent Lamp/Sodium Lamp
Exposure	Auto/Manual/Bright/Shutter/Iris
Focus	Auto/Manual
Iris	Auto/Manual
Gamma	Supported
WDR	Supported
BLC	Supported
2D Noise Reduction	Supported
3D Noise Reduction	Supported
Anti Flicker	OFF/50Hz/60Hz
Image Flip	Supported
Image Voltage	DC12v/POE
Dimension	220mm x 173mm x 190mm/8.66" x 6.81" x 7.48"
Net Weight	1.4kg/3.1lbs

Camera Interface



1. Camera Lens
2. Camera Base
3. IR Receiver Panel
4. Power/Tally Light
5. Dial Switch (Firmware)
6. 1/4" Tripod Screw Hole
7. Installation Hole
8. RS-232 Control Port (Input)
9. RS-232 Control Port (Output)
10. HDMI Port
11. 3G-SDI Port
12. USB Port
13. RJ-45 Port
14. DC12V Plug

Camera Dimensions (in mm)



IR Remote Controller

Power

When powered on, pressing the power key enters standby mode; Pressing it again will start up the camera and display normally. If the camera was started up again, it will recall the last position that it was turned off on.

Freeze (Not Supported)

The Freeze button has no function on the PTZ.

IRT (IR Transfer/IR Pass)

Enables IR transfer. Once pressed, the camera will receive and pass IR remote control signal to the codec/terminal (via VISCA IN Port).

SET 1~4 Address Setting

Hold the SET# button for 3 seconds to set the cameras IR address.

CAM 1~4 (Camera selecting)

Pressing the CAM# button will enable IR control of the selected camera.

Number Key (1-9)

Set Preset: To set preset, hold down a key (0-9) and wait 3 seconds. Once complete, the selected preset will be saved.

Run Preset: Pressing a key (0-9) will bring up the corresponding saved preset.

CLR PRE (Clear Preset)

Clear a Preset: Press CLR PRE and key (0-9) simultaneously to remove the corresponding saved preset.

Clear all Presets: Hold down CLR PRE button to remove all saved presets.

Learn

This button is used with other remote buttons. It has no function when pressed alone.

IR Remote Controller (CONTD)

Focus Key (+/-)

Allows for precise focus change. Manual focus mode must be enabled to use these keys.

Zoom Key (+/-)

Optically zooms the camera in up to 12x.

Navigate Key (Up/Down/Left/Right)

Normal mode: Allows for the camera head to pan and tilt.
Menu mode: Allows for direction in the menu of the camera.

OK/Home Key

Normal mode: Recalls to the home position of the camera.
Menu mode: Used to set functions in the menu and activate features.

AF (Auto Focus)

When enabled, the camera will automatically focus on the closest object.

MF (Manual Focus)

When enabled, the camera will only focus when using one push focusing, or the focus keys on the remote.

Reset

Factory resets image properties **only**.

Menu

Used to enter the OSD menu of the camera.

Limit L

Press this key with the Learn key to set the max left position of the camera.

Limit R

Press this key with the Learn key to set the max right position of the camera.

LMT CLR

Press this key with the Learn key to remove set max positions.

BLC OFF/BLC ON

Not available.

Bright + / Bright -

These buttons raise or lower the brightness of the image.

Video Format Keys:

While directly pointing at the camera, please hold the desired video output button for 3 seconds. If done properly, the PTZ will do a quick reset in the desired video output selected.

OSD MENU

1. When the camera is on, press the MENU key on the IR remote controller to enter the OSD Menu.
2. After entering the main menu, use the UP/DOWN navigate keys on the controller to select the main menu. As you scroll through the menu, the selection will be highlighted in blue.
3. Press the RIGHT navigate key to enter the highlighted sub menu. Use the UP/DOWN navigate keys to select within the sub menu. Use the LEFT/RIGHT navigate keys to enable or disable parameters.
4. To return to the previous menu, you need to press return in the sub menu or MENU on the remote. To fully leave the menu, press the MENU key again.
5. OSD Menu Setting List:

PTZF	FOCUS MODE	AUTO/MANUAL: Ability to change from auto or manual focus	DEFAULT: AUTO
	DIGITAL ZOOM	ON/OFF: Ability to digitally zoom 2X.	DEFAULT: OFF
	RATIO DISPLAY	ON/OFF: Grants display of the zoom X module. Off by default.	DEFAULT: OFF
	ZOOM SPEED	Zoom speed control IR remote: 7 changeable levels.	DEFAULT: 5
	SPEED BY ZOOM	When zoomed into the max, the camera will slowly tilt	DEFAULT: ON
	PAN/TILT SPEED	Pan/Tilt speed control by IR remote. Controllable at different levels	DEFAULT: 18
	RETURN	Return to previous menu.	
	EXPOSURE MODE	AUTO/MANUAL/BRIGHT/SHUTTER/IRIS: Choose the current Exp. Mode	DEFAULT: AUTO
EXPOSURE	SHUTTER	Set shutter speed. 1/30-1/10000: Allows for tuning of the shutter speed	DEFAULT: AUTO
	IRIS	Set Iris: CLOSE-F1.8: Allows for tuning of the Iris opening.	DEFAULT: AUTO
	GAIN	Set gain: 0dB-28dB: Allows for tuning the gain of the camera	DEFAULT: AUTO
	BRIGHTNESS	Set brightness: 0-15: Allows for tuning the brightness of the camera	DEFAULT: AUTO
	FLICK	Allows for adjustment of the flickerless options on the camera	DEFAULT: 50Hz
	BLACKLIGHT	Allows for the enabling of the blacklight or not.	DEFAULT: OFF
	GAMMA	Allows setting changes for the Gamma option of the camera	DEFAULT: 0
	RETURN	Return to previous menu	
IMAGE	WB MODE	AUTO/INDOOR/OUTDOOR/PUSH/ATW/MANUAL/SODIUM	DEFAULT: ATW
	BLUE	Set red gain level: 0-255 (Allows for precise tuning of the blue setting)	DEFAULT: AUTO
	RED	Set blue gain level: 0-255 (Allows for precise tuning of the red setting)	DEFAULT: AUTO
	DEFOG	Set defog level: This setting allows you to clear up the hazy images	DEFAULT: 0
	MIRROR	ON/OFF: Makes the image flip on the vertical plane	DEFAULT: OFF
	FLIP	ON/OFF: (optional) Makes the image flip on the horizontal plane	DEFAULT: OFF
	COLOR/B&W	COLOR/B&W: Allows for B&W color mode	DEFAULT: COLOR
	GAIN LIMIT	Allows you to cap the gain at a certain level	DEFAULT: 15
	RETURN	Return to previous menu	

OSD MENU (CONTD)

QUALITY	2DNR	When enabled, image noise and sharpness is reduced	DEFAULT: OFF
	3DNR	OFF/AUTO/0-4 optional: higher level = less image reduction happens	DEFAULT: AUTO
	SHARPNESS	ON/OFF optional, 0-15 level: higher level = sharper edges of image	DEFAULT: 6
	CONTRAST	Set contrast level: 0-15: Sets the contrast level	DEFAULT: 8
	SATURATION	Set image saturation: 0-15: Sets the saturation level	DEFAULT: 8
	BRIGHTNESS	Set brightness of auto exposure: 0-15: Sets the brightness level	DEFAULT: 8
	WDR	ON/OFF: Enables better to light and dark images	DEFAULT: OFF
	WDR LEVEL	1-6: Enables more control of WDR	DEFAULT: 1
	RETURN	Return to previous menu	
FORMAT	SIZE	1080p/1080i/720p (default resolution: 1080 30p)	After selecting format, press OK to switch format.
	FRAME RATE	60/59.94/50/30/29.97/25/24/23.98	
	RETURN	Return to previous menu	
SYSTEM	ID	Set VISCA control address 1-7	DEFAULT: 1
	BAUDRATE	Set RS-232 baud rate to 2400/4800/9600/115200	DEFAULT: 9600
	LANGUAGE/IDIOMA	Set language: ENGLISH/SPANISH	DEFAULT: ENG
	DHCP	IP address automatic acquisition switch: ON/OFF	DEFAULT: OFF
	IP	Set camera IP	192.168.1.188
	NET MASK	Set camera net mask	255.255.255.0
	GATEWAY	Set camera gateway	192.168.1.1
	RETURN	Return to previous menu	
INFO	IP ADDRESS	Display the current IP address	
	RTSP URL	Display the current main stream RTSP URL	
	F/W VERSION	Display the current ISP firmware version	
	ARM VERSION	Display the current ARM firmware version	
	FPGA VERSION	Display the current FPGA firmware version	
	USB VERSION	Display the current USB firmware version	
RESET	FACTORY RESET	Reset whole camera to factory parameters	
	USER SETTING	Save current parameters for User Reset use	
	USER RESET	Recalls the saved user settings	
	RETURN	Return to previous menu	

Web Settings

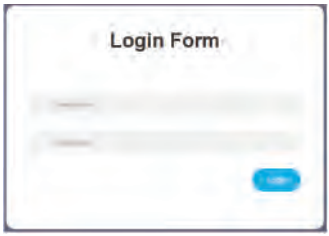
The cameras web interface supports Google Chrome, Firefox, IE, Safari, Opera, and other major browsers.

When using the IP camera via web browser for the first time, you need to install Flash Player to view the camera preview. We suggest downloading it from the official Flash website to get the latest version at Adobe.com/products/flashruntimes.

1. Login

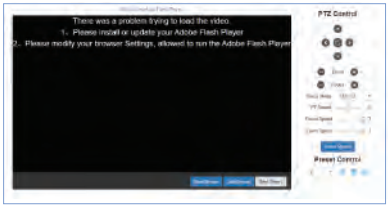
Open your browser and in the address bar, type in the camera's default IP address: 192.168.1.188
(If that doesn't work please check in the camera's menu to see the actual IP address under INFO)

Next, enter the username and password. The default for both is admin.
(If that doesn't work, please factory reset the camera to reset the password)

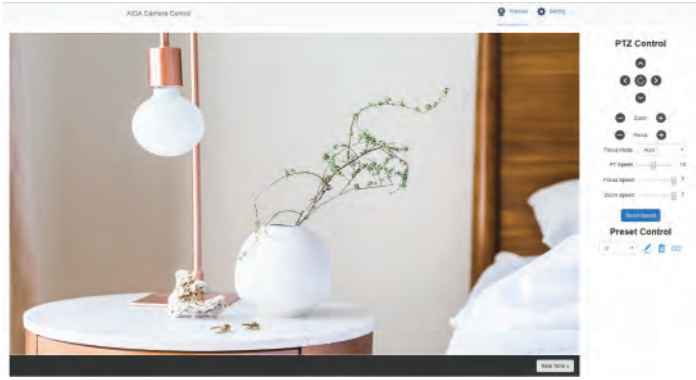


2. Real-time Preview

When logging in the first time, an error may appear like below. The reason is due to the browser blocking flash from running. To fix this, click the button above the preview screen labeled "*click to download Flash Player.*" Once done, a dialog box will appear like seen below. Click "*allow*" and you should see the camera preview.



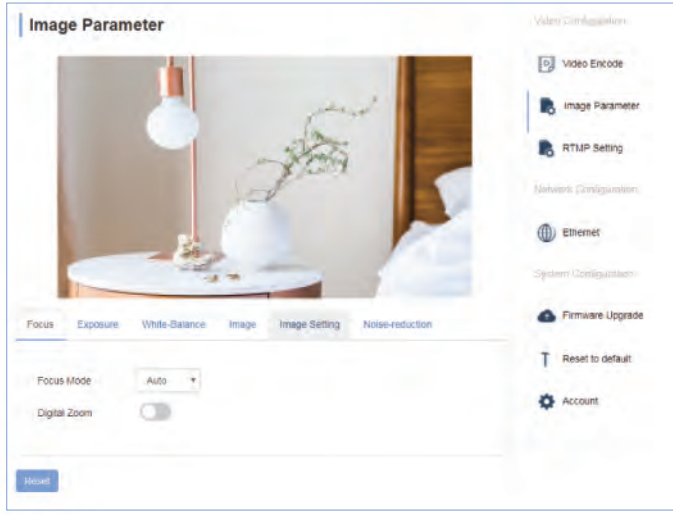
As seen, the control interface is on the right. You can control the camera's movements with the movement pad at the top, as well as control zoom and focus. You can also set the movement, focus, and zoom speed, as well being able to control your presets.



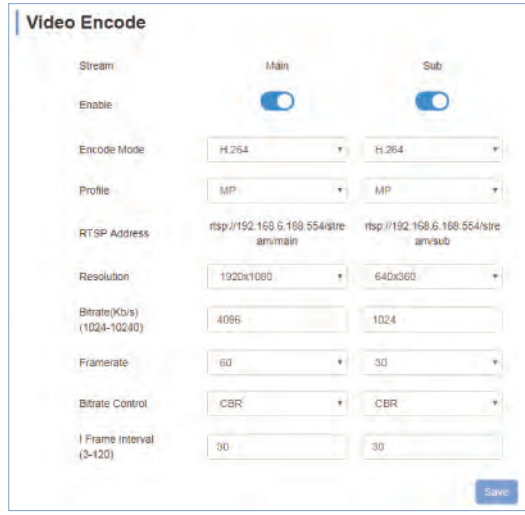
Web Settings (CONTD)

3. Parameter Settings

Click "***Setting***" to enter the parameter setting interface as seen below:

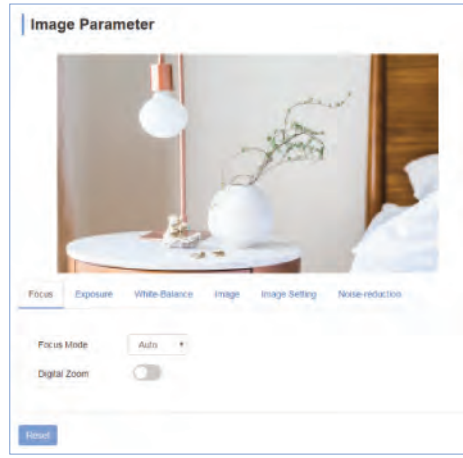


Under "***Video Encode***", you can enable the RTSP/RTMP streams for both the main and sub streams. You may also change the Encode mode, choosing between H.264 or H.265. Lastly, you can change the framerate and bitrate for each stream on this menu.



Web Settings (CONTD)

"***Image Parameter***" is the online version of the OSD Menu. You can change the same settings via browser.



"***RTMP Setting***" allows you to directly stream to many social platforms such as Youtube & Facebook Live. Here you can place the RTMP address, as well as enable the RTMP stream. To do this, you must:

1st: First obtain the live RTMP address (for youtube, it is rtmp://a.rtmp.youtube.com/live2). You will also need your stream key.

2nd: Place the live RTMP address in the Main RTMP address box.

3rd: Next, ensure that their is a forward slash (/) after the RTMP address. If there is already a forward slash, please skip this step.

4th: Lastly, paste your stream key after the forward slash(/).

5th: Click Save

Once you complete these steps, your PTZ will immediately start uploading to your social platforms channel. You will see a blue checkmark next to the RTMP state, which will show if your RTMP address is correctly inputted. No reboot required!

Custom RTMP stream keys also allows you to make your own RTMP address and pull that stream from other programs. If you are stuck on any of these steps, contact our support. They will be glad to assist you in any problems you may encounter.

Web Settings (CONTD)

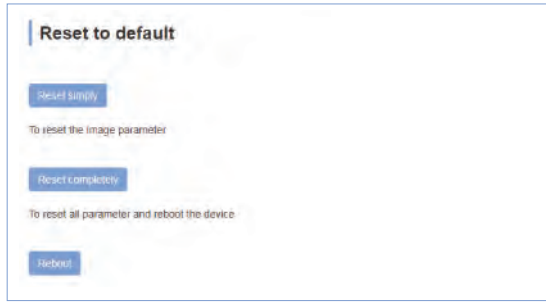
"***Ethernet***" allows for fine tuning if the IP portion of the camera. You can enable DHCP for auto IP configuration.

DHCP	OFF	HTTP Port	80
IP address	192.168.1.188	RTSP Port	554
Subnet Mask	255.255.255.0	RTMP Port	1935
Default Gateway	192.168.1.1		

To upgrade the firmware on our PTZ, head over to our website at aidaimaging.com/download and look for the latest PTZ firmware.

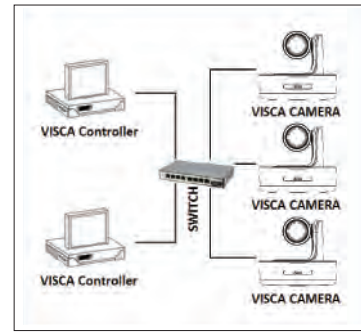
The "***Reset to default***" portion allows you to factory reset image parameter reset, or reboot the camera.

Simple Reset: Only resets customizable camera options: AE, WB, Image Effects, etc.
Complete Reset: Factory resets the camera, including the IP address
Reboot: Reboot ISP portion of the camera.



"***Account Settings***" is used to change the log in for the account. You can change the username and password here.

VISCA over IP



The PTZ-X20-IP uses VISCA over IP protocol to reliably send and receive information from IP controllers.

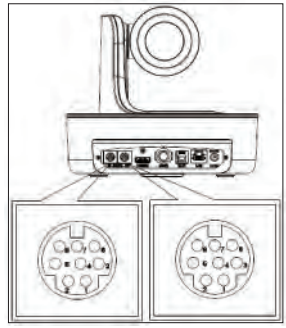
Communication port specs:

- Control port: RJ-45 Gigabit LAN
- IP Protocol: IPv4
- Transmit Protocol: UDP
- IP address: Default 192.168.1.188 (check OSD menu)
- Port address: 52381
- Confirm send/transmission control: Depends on software

What is VISCA over IP?

VISCA commands are the communication between the controller and the camera equipment. These commands are sent via UDP on the network. Since UDP transmission isn't that stable, a couple of steps must happen before a movement is executed. The controller first sends out a VISCA command. The camera equipment then receives the VISCA command and returns that message back to the controller. Once the commands are executed, the action will follow suit and the message will be complete. Each VISCA command controls its own setting, so there are no overlaps in existing commands.

VISCA IN (RS-232 Port)



1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	A
7	IR OUT
8	B

VISCA IN & Mini DIN Connection

Camera VISCA IN		Mini DIN	
1	DTR	1	DSR
2	DSR	2	DTR
3	TXD	5	RXD
4	GND	4	GND
5	RXD	3	TXD
6	A(+)	6	NC
7	IR OUT	7	NC
8	B(-)	8	NC

VISCA IN & DB9 Connection

Camera VISCA IN		Windows DB9	
1	DTR	6	DSR
2	DSR	4	DTR
3	TXD	2	RXD
4	GND	5	GND
5	RXD	3	TXD
6	A(+)		
7	IR OUT		
8	B(-)		

Serial Port Configuration

Parameter	Value	Parameter	Value
Baud Rate	2400/4800/9600/115200	Stop Bit	1 Bit
Start Bit	1 Bit	Check Bit	None
Date Bit	8 Bit		

VISCA Protocol

Part 1: Camera Return Command

ACK/Completion Message		
	Command Packet	Note
ACK	z0 41 FF	Returned when the command is accepted
Completion	z0 51 FF	Returned when the command has been executed

z = camera address +8

Error Messages		
	Command Packet	Note
Syntax Error	z0 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is accepted
Command Not Executable	z0 61 41 FF	Returned when the command cannot be executed due to current conditions. For example, when commands controlling the focus manually are received during auto focus.

Part 2: Camera Control Command

AddressSet	Broadcast	88 30 01 FF	Address setting
IF_Clear	Broadcast	88 01 00 01 FF	I/F Clear
CommandCancel		8x 21 FF	
CAM_Power	On	8x 01 04 00 02 FF	Power ON/OFF
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	p=0(low)~7(high)
	Wide(Variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom Position (0 (wide)~0x4000(tele))
	Direct with speed	8x 0A 04 47 0t 0p 0q 0r 0s FF	t: spd 0~7 pqrs: Zoom Position (0(wide)`0x4000(tele))
CAM_DZoom	ON	8x 01 04 06 02 FF	
	OFF	8x 01 04 06 03 FF	
	Combine Mode	81 01 04 36 00 FF	Combine with optical zoom control
	Separate Mode	81 01 04 36 01 FF	Separate with optical zoom control

VISCA Protocol (CONTD)

CAM_DZoom	Stop	81 01 04 06 00 FF	Enable in separate mode
	Tele(Variable)	81 01 04 06 2p FF	Enable in separate mode
	Wide(Variable)	81 01 04 06 3p FF	Enable in separate mode
	Direct	81 01 04 46 0p 0q 0r 0s FF	Enable in separate mode
CAM_Focus	Stop	8x 01 04 08 00 FF	
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Far(Variable)	81 01 04 08 2p FF	p=0 (Low) to 7 (High)
	Near (Variable)	81 01 04 08 3p FF	p=0 (Low) to 7 (High)
	Direct	8x 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	
	One Push AF	8x 01 04 18 01 FF	
CAM_ZoomFocus	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs: Zoom Position (0(wide)~0x4000(tele)) tuvw: Focus Position
CAM_WB	Auto	8x 01 04 35 00 FF	
	Indoor	8x 01 04 35 01 FF	
	Outdoor	8x 01 04 35 02 FF	
	One Push	8x 01 04 35 03 FF	
	ATW	8x 01 04 35 04 FF	
	Manual	8x 01 04 35 05FF	
	Sodium lamp	8x 01 04 35 08 FF	
	Flourescent	8x 01 04 35 09 FF	
	One Push Trigger	8x 01 04 10 05 FF	
CAM_RGain	Reset	8x 01 04 03 00 FF	
	Up	8x 01 04 03 02 FF	Manual Control of RGain
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	pq: RGain (0~0xFF)
CAM_BGain	Reset	8x 01 04 04 00 FF	
	Up	8x 01 04 04 02 FF	Manual Control of BGain
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	pq: BGain (0-0xFF)

VISCA Protocol (CONTD)

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
	Bright	81 01 04 39 0D FF	Bright Mode (Manual control)
CAM_Shutter	Reset	8x 01 04 0A 00 FF	Shutter Setting
	Up	8x 01 04 0A 02 FF	
	Down	8x 01 04 0A 03 FF	
	Direct	8x 01 04 4A 00 00 0p 0q FF	pq: Shutter Position (0~0x15)
CAM_Iris	Reset	8x 01 04 0B 00 FF	Iris Setting (0~0x0D)
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	pq: Iris Position (0~0x0D)
CAM_Gain	Reset	8x 01 04 0C 00 FF	Gain Setting (0~0x0E)
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 0C 00 00 0p 0q FF	pq: Gain Position (0~0x0E)
CAM_Bright	Reset	8x 01 04 0D 00 FF	Bright Setting
	Up	8x 01 04 0D 02 FF	
	Down	8x 01 04 0D 03 FF	
	Direct	8x 01 04 4D 00 00 0p 0q FF	pq: Bright Position (0~0x1B)
CAM_ImageBright	Direct	8x 01 04 A4 00 00 0p 0q FF	pq: Image Bright Position (0~0x0F) AE_AUTO/AE_SHUTTER/AE_IRIS
CAM_WDR	On	8x 01 04 3D 02 FF	Exposure Compensation ON/OFF
	Off	8x 01 04 3D 03 FF	
	Direct	8x 01 04 D3 pq FF	pq: ExpComp Position (0~0x6)
CAM_Backlight (BLC)	On	8x 01 04 33 02 FF	Blacklight On
	Off	8x 01 04 33 03 FF	Blacklight Off
CAM_Sharpness	Reset	8x 01 04 02 00 FF	Aperture Control
	Up	8x 01 04 02 02 FF	
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	pq: Aperture Gain (0~0x0F)

VISCA Protocol (CONTD)

CAM_Memory (preset)	Reset	8x 01 04 3F 00 0p FF	p: Preset Number (=0 to 128) Corresponds to 0-9 on the remote controller
	Set	8x 01 04 3F 01 0p FF	
	Recall	8x 01 04 3F 02 0p FF	
CAM_LR_Reverse	On	8x 01 04 61 02 FF	Image Flip Horizontal On/Off
	Off	8x 01 04 61 03 FF	
CAM_PictureFlip	On	8x 01 04 66 02 FF	Image Flip Horizontal On/Off
	Off	8x 01 04 66 03 FF	
CAM_RS485Ctl	On	8x 01 06 A5 02 FF	
	Off	8x 01 06 A5 03 FF	
CAM_Saturation	Saturation	8x 01 04 A1 00 00 0p 0q FF	pq: Saturation Level 0x00~0xff
CAM_Contrast	Contrast	8x 01 04 A2 00 00 0p 0q FF	pq: Contrast Level 0x00~0xff
CAM_SpeedByZoom	On	8x 01 06 A0 02 FF	
	Off	8x 01 06 A0 03 FF	
CAM_PTSpeed	PT Speed	8x 01 04 C1 00 00 0p 0q FF	pq: PT Speed 0x05~0x18
CAM_ZoomSpeed	Zoom Speed	8x 01 04 D1 00 00 0p 0q FF	pq: Zoom Speed 0x01~0x07
CAM_ZoomDisplay	On	8x 01 06 C2 02 FF	
	Off	8x 01 06 C2 03 FF	
CAM_IRaddress	IR address	8x 01 06 D8 0p FF	p: IR address1~4
CAM_Gamma	Gamma set	81 01 04 5B 0p FF	p: Gamma No. (0~4)
CAM_ColorGain	Direct	8x 01 04 49 00 00 00 0p FF	(0~0x0E)
CAM_2DNR	Direct	8x 01 04 A5 0p FF	(0~0x1)
CAM_3DNR	Direct	8x 01 04 53 0p FF	(0~0x05)
FLICK	50Hz	81 01 04 23 01 FF	
	60Hz	81 01 04 23 02 FF	
	OFF	81 01 04 23 00 FF	

VISCA Protocol (CONTD)

VideoSystem Set (AIDA)		8x 01 06 35 00 pp FF	pp: Video Format: 1080P60 0x00 1080P50 0x01 1080I60 0x02 1080I50 0x03 1080P30 0x 04 1080P25 0x05 720P60 0x 06 720P50 0x07 720P30 0x08 720P25 0x09 1080P5994 0x0E 1080I5994 0x0F 1080P2997 0x10 720P5994 0x13 720P2997 0x14 1080P24 0x11 1080P2398 0x12
VideoSystem Set (Sony)		81 01 04 24 72 0p 0q FF	pp: Video Format: 1080P60 0x2e 1080P50 0x2f 1080I60 0x01 1080I50 0x04 1080P30 0x06 1080P25 0x08 720P60 0x09 720P50 0x0c 720P30 0x0e 720P25 0x11 1080P5994 0x13 1080I5994 0x02 1080P2997 0x07 720P5994 0x0a 720P2997 0x0f 1080P24 0x2a 1080P2398 0x2b
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs: Camera ID (=0000 to FFFF)
DHCP control	DHCP off	8x 01 04 AE 00 FF	DHCP off
	DHCP on	8x 01 04 AE 01 FF	DHCP on
Main Stream	Resolution	8x 01 04 C2 00 0p 0q 0r 0s 0m 0n 0x 0y FF	pqrs: Column(x size) mnxy: Line (y size) only support: 1920x1080/1280x720
	Rate	8x 01 04 C2 01 0p 0q 0r 0s 0m 0n 0x 0y FF	pqrsmnxy: bitrate (0~15360)
Sub Stream	Resolution	8x 01 04 C3 00 0p 0q 0r 0s 0m 0n 0x 0y FF	pqrs : Column(x size) mnxy: Line (y size) only support: 1280x720/1024x576/640x360
	Rate	8x 01 04 C3 01 0p 0q 0r 0s 0m 0n 0x 0y FF	pqrsmnxy: bitrate (0~15360)
Tally Control	Off	8x 01 7E 01 0A 00 0p FF	p: 0: OFF(LED off) 1: (LED green on) 2: (LED red on) 4: (LED blue on)
IP address control	IP Set	8x 01 04 AB 0p 0q 0r 0s 0m 0n 0x 0y FF	Set ip to :pq.rs.mn.xy
	Mask	8x 01 04 AC 0p 0q 0r 0s 0m 0n 0x 0y FF	Set mask to :pq.rs.mn.xy
	Gateway set	8x 01 04 AD 0p 0q 0r 0s 0m 0n 0x 0y FF	Set gateway to :pq.rs.mn.xy
Color adjust	Color Adjust OFF	8x 01 04 B6 00 FF	Color adjust off
	Color Adjust ON	8x 01 04 B6 01 FF	Color adjust on
	Brightness Balance OFF	8x 01 04 B7 00 FF	Keep Brightness
	Brightness Balance ON	8x 01 04 B7 01 FF	Don't Keep Brightness

VISCA Protocol (CONTD)

Color adjust	Flare red	8x 01 04 B8 dat FF	Flare mode red value (Default=32)
	Flare green	8x 01 04 B9 dat FF	Flare mode green value (Default=32)
	Flare blue	8x 01 04 BA dat FF	Flare mode blue value (Default=32)
SYS_Menu	Menu On	8x 01 06 06 02 FF	Turn on menu
	Menu Off	8x 01 06 06 03 FF	Turn off menu
	Menu Back	8x 01 06 06 10 FF	Menu step back
	Menu Ok	8x 01 7E 01 02 00 01 FF	Menu ok
IR_Receive	On	8x 01 06 08 02 FF	IR(remote commander)receive ON/OFF
	Off	8x 01 06 08 03 FF	
	On/Off	8x 01 06 08 10 FF	
Pan_TiltDrive	Up	8x 01 06 01 VV WW 03 01 FF	VV: Pan speed 0x01 (low speed) to 0x18 (high speed) WW: Tilt speed 0x01 (low speed) to 0x14 (high speed) YYYY: Pan Position(TBD) ZZZZ: Tilt Position(TBD)
	Down	8x 01 06 01 VV WW 03 02 FF	
	Left	8x 01 06 01 VV WW 01 03 FF	
	Right	8x 01 06 01 VV WW 02 03 FF	
	Upleft	8x 01 06 01 VV WW 01 01 FF	
	Upright	8x 01 06 01 VV WW 02 01 FF	
	Downleft	8x 01 06 01 VV WW 01 02 FF	
	Downright	8x 01 06 01 VV WW 02 02 FF	
	Stop	8x 01 06 01 VV WW 03 03 FF	
	Absolute Position	8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z 0Z FF	
	Relative Position	8x 01 06 03 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z 0Z FF	
	Home	8x 01 06 04 FF	
	Reset	8x 01 06 05 FF	
Pan Tilt_LimitSet	Set	8x 01 06 07 00 0W 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	PW: 1: UpRight 0:DownLeft YYYY: Pan Limit Position(TBD) ZZZZ: Tilt Limit Position(TBD)
	Clear	8x 01 06 07 01 0W 07 0F 0F 0F 07 0F 0F 0F FF	

VISCA Protocol (CONTD)

Part 3: Inquiry Command

Command Type	Command	Return	Note
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off (Standby)
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_Focus ModeInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_WBModeInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 01 FF	Indoor Mode
		y0 50 02 FF	Outdoor Mode
		y0 50 03 FF	OnePush Mode
		y0 50 04 FF	ATW
		y0 50 05 FF	Manual
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: R Grain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Grain
CAM_AEModeInq	8x 09 04 39 FF	y0 50 00 FF	Full Auto
		y0 50 03 FF	Manual
		y0 50 0A FF	Shutter Priority
		y0 50 0B FF	Iris Priority
		y0 50 0D FF	Bright
CAM_Shutter PosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris Position
CAM_GainPosiInq	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	pq: Gain Position
CAM_ BrightPosiInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ ImageBright PosiInq	8x 09 04 A4 FF	y0 50 00 00 0p 0q FF	pq: ImageBright Position
CAM_SaturationInq	8x 09 04 A1 FF	y0 50 00 00 0p 0q FF	pq: Saturation level 0x00~0x0f
CAM_DefogInq	8x 09 04 A3 FF	y0 50 0p FF	p: Defog level 0x00~0x0f
CAM_ContrastInq	8x 09 04 A2 FF	y0 50 00 00 0p 0q FF	pq: Contrast level 0x00~0x0f
CAM_WDRModeInq	8x 09 04 3D FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_WDRPosInq	8x 09 04 2D FF	8x 01 04 02 03 FF	pq: WDR LEVEL Position 1~6

VISCA Protocol (CONTD)

Command Type	Command	Return	Note
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	p: Aperture Gain
CAM_FlickerInq	8x 09 04 AA FF	y0 50 0p FF	p: Flick mode 0:off 1:50Hz 2:60Hz
CAM_2DNRInq	8x 09 04 A5 FF	y0 50 0p FF	p: 2DNR: 0=OFF 1= AUTO 2
CAM_3DNRInq	8x 09 04 53 FF	y0 50 0p FF	p: 3DNR: 0=OFF 1= AUTO 2~5=Manual Level
CAM_GammaInq	8x 09 04 5B FF	y0 50 0p FF	p: Gamma Position
CAM_MemoryInq	8x 09 04 3F FF	y0 50 pp FF	pp: Memory number last operated
SYS_MenuModeInq	8x 09 06 06 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_LR_Reverse Inq	8x 09 04 61 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_PictureFlipInq	8x 09 04 66 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_IDInq	8x 09 04 22 FF	y0 50 0p 0q 0r 0s FF	pqrs: Camera ID
CAM_DHCPInq	8x 09 04 AE FF	y0 50 pp FF	
CAM_IPInq	8x 09 04 AB FF	y0 50 0p 0p 0q 0q 0r 0r 0s 0s FF	
CAM_MASKInq	8x 09 04 AC FF	y0 50 0p 0p 0q 0q 0r 0r 0s 0s FF	
CAM_GATEWAYInq	8x 09 04 AD FF	y0 50 0p 0p 0q 0q 0r 0r 0s 0s FF	
CAM_FlareModeInq	8x 09 04 B6 FF	y0 50 pp FF	
CAM_FlareBright ModeInq	8x 09 04 B7 FF	y0 50 pp FF	
CAM_FlareRed	8x 09 04 B8 FF	y0 50 pp FF	
CAM_FlareGreen	8x 09 04 B9 FF	y0 50 pp FF	
CAM_FlareBlue	8x 09 04 BA FF	y0 50 pp FF	
CAM_VersionInq	8x 09 00 02 FF	y0 50 ab cd mn pq rs tu vw FF	
VideoSystemInq (AIDA)	8x 09 06 23 FF	y0 50 pp FF	pp: Video position
VideoSystemInq (Sony)	8x 09 04 24 72 FF	y0 50 0p 0p FF	pp: Video position
IR_Transfer	8x 09 06 1A FF	y0 50 02 FF	On
		y0 50 03 FF	Off
TallyInq	8x 09 7E 01 0A FF	y0 50 0p FF	p: tally state
IR_Receive	8x 09 06 08 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
IR_ReceiveReturn		y0 07 7D 01 04 00 FF	Power ON/OFF

VISCA Protocol (CONTD)

Command Type	Command	Return	Note
IR_ReceiveReturn		y0 07 7D 01 04 00 FF	Zoom tele/wide
		y0 07 7D 01 04 07 FF	AF On/Off
		y0 07 7D 01 04 33 FF	CAM_Backlight
		y0 07 7D 01 04 3F FF	CAM_Memory
		y0 07 7D 01 06 01 FF	Pan_tiltDrive
Pan-tiltMaxSpeed Inq	8x 09 06 11 FF	y0 50 ww zz FF	ww: PanMaxSpeed zz: Tilt Max Speed
Pan-tiltPosInq	8x 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF	wwww: PanPosition zzzz: Tilt Position
Mainstream ResolutionInq	8x 09 04 C2 00 FF	y0 50 0p 0q 0r 0s 0m 0n 0x 0y FF	pqrs : Column(x size) mnxy: Line (y size) only supports: 1920x1080
MainstreamRate Inq	8x 09 04 C2 01 FF	y0 50 0p 0q 0r 0s 0m 0n 0x 0y FF	pqrsmnxy: bitrate (0~15360)
Substream ResolutionInq	8x 09 04 C3 00 FF	y0 50 0p 0q 0r 0s 0m 0n 0x 0y FF	pqrs : Column(x size) mnxy: Line (y size) only supports: 1280x720/1024x576/640x360
SubstreamRateInq	8x 09 04 C3 01 FF	y0 50 0p 0q 0r 0s 0m 0n 0x 0y FF	pqrsmnxy: bitrate (0~15360)

Note: [x] refers to camera address; [y] = [x +8]

VISCA Pan Tilt Absolute Position Value

Pan Angle	VISCA Value	Tilt Angle	VISCA Value
-170	0xF670	-30	0xFE50
-135	0xF868	0	0x0000
-90	0xFAF0	30	0x01B0
-45	0xFD78	60	0x0360
0	0x0000	90	0x510
45	0x0288		
90	0x0510		
135	0x0798		
170	0x0990		

VISCA Pan Tilt Speed Value

Pan Degree/Second			
0	0.3	0.3	.03
1	1	1	1
2	1.5	1.5	1.5
3	2.2	2.2	2.2
4	2.4	2.4	3.6
5	2.6	2.6	4.7
6	2.8	2.8	6
7	3.0	3.0	8
8	3.2	3.2	10
9	3.4	3.4	12
10	3.8	3.8	15
11	4.5	4.5	18
12	6	6	23

Pan Degree/Second			
13	9	13	30
14	15	14	39
15	19	15	48
16	25	16	59
17	32	17	69
18	38	18	80
19	45		
20	58		
21	75		
22	88		
23	105		
24	120		

UVC Control

The PTZ-X12-IP supports UVC interface.

PU_BRIGHTNESS_CONTROL	81 01 04 4d 00 00 0p 0q FF
PU_CONTRAST_CONTROL	81 01 04 A2 00 00 0p 0q FF
PU_SATURATION_CONTROL	81 01 04 A1 00 00 0p 0q FF
PU_SHARPNESS_CONTROL	8x 01 04 42 00 00 0p 0q FF
PU_GAMMA_CONTROL	8x 01 04 5B 0p FF
PU_WHITE_BALANCE_TEMPERATURE_CONTROL	8x 01 04 35 0X FF
PU_BLACKLIGHT_COMPENSATION_CONTROL	81 01 04 33 02/03 FF
PU_POWER_LINE_FREQUENCY_CONTROL	8x 01 04 AA 00/01/02 FF
CT_ZOOM_ABSOLUTE_CONTROL	8x 01 04 47 0p 0q 0r 0s FF
CT_PANTILT_ABSOLUTE_CONTROL	8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z F
CT_PANTILT_RELATIVE_CONTROL	8x 01 06 01 pp qq rr ss FF
CT_ZOOM_RELATIVE_CONTROL	8x 01 04 07 pp FF

Warranty

AIDA Imaging warrants its cameras and items to be free from defects under normal use. Please refer to our website for more information at: aidaimaging.com/support

Support

If you would like additional support or explanation of anything on this manual, please feel free to go to our FAQ page on our website at aidaimaging.com/support. If you are in need of additional help, or have any general questions, please feel free to contact us in these various ways:

Telephone: 909.333.7421

Email: Support@aidaimaging.com

Website: aidaimaging.com/support

We are open yearly, Mon-Fri 8A.M. to 5P.M. PST, excluding major holidays and events.

Also, keep up to date with firmwares and new releases from AIDA Imaging by signing up for our newsletter, found at the bottom of our website.

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