

LILLIPUT P20 20X

LILLIPUT AVMATRIX Eagle P20 (20X) 4K PTZ Camera User Manual

Model: P20 20X

1. INTRODUCTION

This manual provides detailed instructions for the setup, operation, maintenance, and troubleshooting of your LILLIPUT AVMATRIX Eagle P20 (20X) 4K Professional Broadcast PTZ Camera. Please read this manual thoroughly before using the product to ensure proper functionality and to prevent damage.

2. PRODUCT OVERVIEW

2.1 Key Features

- **4K Ultra-High-Definition:** Equipped with an 8.3 Megapixel CMOS sensor, supporting resolutions up to 3840x2160 at 60fps.
- **20X Optical Zoom Lens:** Provides clear and detailed imaging.
- **Low Noise Performance:** Advanced 2D and 3D noise reduction algorithms ensure clear picture quality even in low light.
- **Multiple Video Outputs:** Supports simultaneous HDMI2.0 4K UHD, 3G-SDI 1080P, 4K IP Streaming, and 4K USB3.0 uncompressed UVC output. Dual 12G-SDI synchronous output is available for broadcasting events.
- **Flexible Control:** Supports VISCA, UDP, ONVIF, PELCO-P/D, and UVC protocols via RS232, RS422, or IP network.
- **Quiet Pan and Tilt Movement:** High-precision stepping motors ensure smooth, accurate, and silent camera adjustments.
- **Preset Functionality:** Supports up to 255 presets for quick scene switching, including a preset freeze function.
- **Double Color Tally Light:** Adjustable red and green tally lights for broadcast environments.
- **360° Infrared Remote Control:** Allows flexible remote operation.

2.2 Package Contents

The product package includes the following items:

- LILLIPUT AVMATRIX Eagle P20 (20X) PTZ Camera
- Power Cord
- Quick Guide
- Remote Control



Figure 1: Front view of the LILLIPUT AVMATRIX Eagle P20 (20X) PTZ Camera.

3. SETUP

Follow these steps to set up your PTZ camera:

3.1 Connecting the Camera

Refer to the connection panel diagram below for port identification.



Figure 2: Rear connection panel of the PTZ Camera.

1. **Power Connection:** Connect the provided power cord to the DC 12V input port on the rear panel and plug it into a suitable power outlet.
2. **Video Output:**

- For 4K UHD output, connect an HDMI 2.0 cable from the HDMI port to your display or video switcher.
- For 1080P output, connect 3G-SDI cables from the 12G-SDI ports (labeled 1 and 2) to your SDI compatible devices.
- For USB 3.0 output, connect a USB 3.0 cable from the USB 3.0 port to your computer for uncompressed UVC video.

3. **Audio Input:** Connect an audio source to the A-IN port using a 3.5mm audio cable.

4. **Network Connection:** For IP streaming and network control, connect an Ethernet cable from the LAN port to your network router or switch.

5. **Control Connections:**

- For RS422 control, connect to the RS422 IN/OUT ports.
- For RS232 control, connect to the RS232 IN/OUT ports.

6. **DIP Switch Configuration (CAMERA SETUP):** Adjust the DIP switches according to your specific network and control protocol requirements. Refer to the detailed protocol section in the full manual for specific settings.

4. OPERATING INSTRUCTIONS

4.1 Powering On/Off

To power on the camera, ensure all connections are secure and plug in the power cord. The camera will perform a self-test. To power off, disconnect the power cord.

4.2 Pan, Tilt, and Zoom Control

The camera can be controlled using the included infrared remote control, or via a compatible control panel connected through RS232, RS422, or IP network. Use the directional controls to pan (horizontal movement) and tilt (vertical movement) the camera. Use the zoom controls to adjust the optical zoom (20X).

4.3 Presets

The camera supports up to 255 preset positions. To set a preset:

1. Manually adjust the camera to the desired position (pan, tilt, zoom, focus).
2. On your remote control or control panel, select a preset number.
3. Save the position to that preset number.

To recall a preset, simply select the desired preset number. The camera also features a preset freeze function, allowing for seamless scene switching without showing the camera's movement between presets.

4.4 Focus and Exposure

The camera supports manual and auto focus modes. Adjust focus as needed for sharp images. Exposure settings such as white balance (Manual/Auto/Indoor/Outdoor/One Push/3000K/4000K/5000K/6500K/ATW) and BLC (Backlight Compensation) can be configured to optimize image quality in various lighting conditions.

4.5 Tally Light

The camera is equipped with a double color tally light (red and green) to indicate camera status (e.g., live or preview). The brightness of the tally light can be adjusted.

5. MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your camera.

- **Cleaning:** Use a soft, dry cloth to clean the camera body. For the lens, use a specialized lens cleaning cloth and solution. Avoid abrasive cleaners or solvents.
- **Storage:** When not in use for extended periods, store the camera in a dry, dust-free environment.
- **Environmental Conditions:** Operate the camera within its specified temperature and humidity ranges to prevent damage.
- **Firmware Updates:** Periodically check the manufacturer's website for firmware updates to ensure your camera has the latest features and bug fixes.

6. TROUBLESHOOTING

If you encounter issues with your camera, refer to the following common troubleshooting steps:

- **No Power:**
 - Ensure the power cord is securely connected to both the camera and the power outlet.
 - Verify the power outlet is functional.
- **No Video Output:**
 - Check all video cables (HDMI, SDI, USB) for secure connections.
 - Confirm the input source on your display or switcher is correctly selected.
 - Verify the camera's video output settings match the receiving device's capabilities.
- **Camera Not Responding to Control:**
 - For remote control, ensure batteries are fresh and there are no obstructions.
 - For wired control (RS232/RS422), check cable connections and verify protocol settings (DIP switches, software configuration).
 - For IP control, ensure the camera is connected to the network and its IP address is correctly configured and accessible.
- **Poor Image Quality:**
 - Clean the lens if it appears dirty.
 - Adjust focus, exposure, and white balance settings.
 - Ensure adequate lighting in the shooting environment.

If the problem persists after attempting these steps, please contact LILLIPUT customer support.

7. SPECIFICATIONS

The following table details the technical specifications for the LILLIPUT AVMATRIX Eagle P20 (20X) PTZ Camera.

Model		
Specifications	20X	30X
CMOS Sensor	1/1.8" CMOS	1/1.8" CMOS
Effective Pixels	8.3 Megapixels	
Video Format	2160P60/59.94、 2160P50、 2160P30/29.97、 2160P/25； 1080P60/59.94、 1080P50、 1080P30/29.97、 1080P25； 1080i60/59.94、 1080i50； 720P60/59.94、 720P50	
Optical Zoom	20x Optical Zoom 12X Digital Zoom	30x Optical Zoom 12X Digital Zoom
Focus Length	f=7.1~141.3mm	f=7.1~211.95mm
HFOV	3.6°(T) ~ 59.2°(W)	2.5°(T) ~ 59.2°(W)
Iris	F1.61 ~ F5.19	F1.61 ~ F5.19
Min Illumination	0.05 lux (F1.61)	
Digital Noise Reduction	2D&3D Noise Reduction	
White Balance	Manual/Auto/Indoor/outdoor/One Push/3000K/4000K/5000K/6500K/ATW	
Focus mode	Manual/Auto/Z- Trigger	
Iris mode	Manual/Auto	
BLC	1-8/Off	
Picture adjustment	Brightness, Hue, Saturation, Contrast, Sharpness	
I/O Parameters		
Video Output Interface	HDMI2.0、 12G-SDI*2、 RJ45、 USB3.0	
Video Compression Format	H.264、 H.265、 MJPEG	
Control interface	1X RS232 IN, 1X RS232 Out, 1X RS422 IN, 1X RS422 Out , 1X RJ45	
Control Protocol	VISCA /PELCO-D / PELCO-P、 VISCA OVER IP、 ONVIF、 UVC (ONLY FOR USB INTERFACE)	
Baud Rate	2400/4800/9600/19200/38400bps	
Audio Input	Dual channel 3.5mm line input	
Audio Compression	ACC、 G711A、 G711U	
Network Interface	1000M Internet Access(10/100BASE-TX)	
Network Protocol	RTSP、 RTMP、 ONVIF、 NDI HX3、 SRT、 GB28181、 VPN	
Power Interface	DC-038 Outlet(DC12V),	
Pan/Tilt Mechanical Parameters		
Pan Rotation Angle	-175°~ +175°	
Tilt Rotation Angle	-30°~ +90°	
Horizontal rotation speed range	0.1~100°/s	
Vertical rotation speed range	0.1~80°/s	
Presets	Max Support 255 Presets	

Figure 3: Detailed specifications table for the PTZ Camera.

Feature	Specification (P20 20X)
Brand	LILLIPUT
Model Name	EAGLE P20P30
Model Number	P20 20X
Photo Sensor Technology	CCD
Video Capture Resolution	4K (3840x2160)
Optical Zoom	20X
Minimum Focal Length	20mm
Maximum Focal Length	30mm
Connectivity Technology	HDMI, SDI, USB 3.0, LAN (RJ45), RS232, RS422

Feature	Specification (P20 20X)
Control Protocols	VISCA, PELCO-P/D, ONVIF, UDP, UVC
Pan Rotation Range	-175° ~ +175°
Tilt Rotation Angle	-30° ~ +90°
Color	BLACK
Compatible Devices	Laptop, Video Switchers, Recorders
UPC	614347060100

8. WARRANTY AND SUPPORT

8.1 Warranty Information

This LILLIPUT AVMATRIX Eagle P20 (20X) PTZ Camera comes with a two-year warranty provided by LILLIPUT USA, based in California. Please retain your proof of purchase for warranty claims.

8.2 Customer Support

For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please contact LILLIPUT USA customer support. Refer to the official LILLIPUT website for the most current contact information.