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## Lumens VC-A50PN

# Lumens VC-A50PN NDI, SDI, HDMI 20x HD PTZ Camera User Manual

Model: VC-A50PN

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## 1. INTRODUCTION

The Lumens VC-A50PN is a high-definition Pan/Tilt/Zoom (PTZ) camera designed for professional video production and streaming applications. It features a 1/2.8-inch image sensor, delivering Full HD 1080p video at 60 frames per second. This camera supports multiple output interfaces including NDI, 3G-SDI, and HDMI, offering versatile connectivity options. Power over Ethernet (PoE+) simplifies installation by providing power, control, and video over a single Ethernet cable. The VC-A50PN is equipped with a 20x optical zoom lens, ensuring clear images even in challenging lighting conditions. Its precise and quiet PTZ mechanism allows for wide shooting angles and smooth camera movements, making it suitable for education, videoconferencing, live broadcasting, and gaming environments.



Figure 1: Front and side view of the Lumens VC-A50PN PTZ Camera. This image shows the camera's compact design and lens.

## 2. SAFETY INFORMATION

Please read all instructions carefully before operating the camera. Retain this manual for future reference.

- **Power Source:** Use only the specified power adapter (DC 12V) or a compliant PoE+ (IEEE 802.3at) network switch.
- **Installation:** Install the camera on a stable surface or mount it securely to a ceiling using appropriate hardware. Ensure proper ventilation around the camera.

- **Environment:** Avoid exposing the camera to moisture, rain, dust, or extreme temperatures. Do not operate near heat sources.
- **Cleaning:** Disconnect power before cleaning. Use a soft, dry cloth. Do not use liquid or aerosol cleaners.
- **Servicing:** Do not attempt to service this product yourself. Refer all servicing to qualified service personnel.
- **Cables:** Ensure all cables are properly connected and secured to prevent accidental disconnection or damage.

### 3. PACKAGE CONTENTS

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Verify that all items listed below are included in your package. If any items are missing or damaged, contact your dealer immediately.

- Lumens VC-A50PN PTZ Camera
- Power Adapter (DC 12V)
- IR Remote Control
- Mounting Bracket (for ceiling installation)
- User Manual (this document)

### 4. PRODUCT OVERVIEW

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#### 4.1 Camera Features

- Full HD 1080p output at 60 fps
- 20x optical zoom lens
- NDI|HX Technology for low-latency IP video transmission
- Supports Power over Ethernet (PoE+)
- Multiple video outputs: HDMI, 3G-SDI, and IP (Ethernet)
- Wide shooting angles with 340° pan and 120° tilt range
- Supports SRT (Secure Reliable Transport) protocol
- Audio input supports AAC encoding with 44.1/48 K sampling frequency

#### 4.2 Rear Panel Connections

The rear panel of the VC-A50PN camera provides all necessary input and output ports for power, video, audio, and control. Refer to the diagram below for a detailed layout.



Figure 2: Detailed view of the Lumens VC-A50PN rear panel connections.

1. **Kensington Lock Port:** For securing the camera with a compatible lock.
2. **DC IN 12V:** Power input for the included DC 12V power adapter.
3. **USB:** For firmware updates and service.
4. **AUDIO IN:** 3.5mm stereo audio input jack.
5. **ETHERNET (NDI|HX):** RJ-45 port for network connection, PoE+ power, NDI video, and IP control.
6. **RS-232 OUT:** 8-pin mini-DIN connector for RS-232 serial control output.
7. **RS-232 IN:** 8-pin mini-DIN connector for RS-232 serial control input.
8. **HDMI OUT:** HDMI output port for video.
9. **RS-422:** 9-pin terminal block for RS-422 serial control.
10. **3G-SDI:** BNC connector for 3G-SDI video output.

11. **OUTPUT SWITCH (DIP Switches):** Four DIP switches to configure video output settings. Refer to section 5.3 for details.
12. **IR SELECT:** Switch to select the IR remote control address.

## 5. SETUP

### 5.1 Physical Installation

The VC-A50PN can be installed on a desktop or mounted to a ceiling.

- **Desktop Installation:** Place the camera on a flat, stable surface. Ensure adequate space for ventilation and cable connections.
- **Ceiling Installation:** Use the provided mounting bracket and hardware. Ensure the ceiling can support the camera's weight. Follow the instructions included with the mounting kit for secure installation.

### 5.2 Connecting Cables

Before connecting cables, ensure the camera is powered off.

#### 1. Power Connection:

- **DC Power:** Connect the included 12V DC power adapter to the "DC IN 12V" port.
- **PoE+ Power:** If using PoE+, connect an Ethernet cable from a PoE+ enabled network switch to the "ETHERNET" port. The camera will receive power through this connection, eliminating the need for the DC power adapter.

#### 2. Video Output:

- **HDMI:** Connect an HDMI cable from the "HDMI OUT" port to an HDMI input device (e.g., monitor, switcher).
- **3G-SDI:** Connect a 3G-SDI cable from the "3G-SDI" port to an SDI input device.
- **IP (NDI|HX):** Connect an Ethernet cable from the "ETHERNET" port to your network. The NDI|HX video stream will be available over the network.

3. **Audio Input:** Connect an audio source (e.g., microphone, mixer) to the "AUDIO IN" 3.5mm jack.

#### 4. Control Connections:

- **RS-232:** Connect a serial control cable to the "RS-232 IN" port for external control. The "RS-232 OUT" port can be used for daisy-chaining.
- **RS-422:** Connect a serial control cable to the "RS-422" terminal block for external control.
- **IP Control:** The camera can also be controlled via IP commands over the Ethernet connection.

### 5.3 Output Switch (DIP Switches) Configuration

The four DIP switches on the rear panel (labeled "OUTPUT SWITCH") are used to configure specific video output settings. Refer to the table below for common configurations. Ensure the camera is powered off before changing DIP switch settings.



Figure 3: I/O Connections Diagram highlighting the OUTPUT SWITCH DIP switches.

Switch 1	Switch 2	Switch 3	Switch 4	Function/Setting
OFF	OFF	OFF	OFF	Default (e.g., 1080p/60)

Switch 1	Switch 2	Switch 3	Switch 4	Function/Setting
ON	OFF	OFF	OFF	1080p/59.94
OFF	ON	OFF	OFF	1080p/50
ON	ON	OFF	OFF	1080i/60
OFF	OFF	ON	OFF	720p/60
...	...	...	...	<i>(Consult full manual for all DIP switch combinations)</i>

## 6. OPERATING INSTRUCTIONS

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### 6.1 Powering On/Off

- **Power On:** Connect the power adapter or PoE+ Ethernet cable. The camera will initiate its startup sequence.
- **Power Off:** Disconnect the power adapter or PoE+ Ethernet cable.

### 6.2 PTZ Control

The camera can be controlled via the IR remote control, RS-232/RS-422 serial commands, or IP control software.

- **Pan/Tilt:** Use the directional controls on your remote or software to move the camera horizontally (pan) and vertically (tilt). The camera offers 340° pan and 120° tilt.
- **Zoom:** Use the zoom controls to adjust the 20x optical zoom.
- **Focus:** The camera supports auto-focus. Manual focus adjustment may be available via control software.
- **Presets:** The camera supports up to 128 preset positions. You can save and recall specific pan, tilt, and zoom settings for quick camera positioning.

### 6.3 Video Output

The VC-A50PN simultaneously outputs video via HDMI, 3G-SDI, and IP (NDI|HX).

- **HDMI/3G-SDI:** Connect these outputs to your video switcher, monitor, or recording device. The resolution and frame rate are determined by the DIP switch settings and camera configuration.
- **NDI|HX:** Once connected to a network, the NDI|HX stream will be discoverable by NDI-compatible software and hardware on the same network.

### 6.4 Network Configuration (IP Control & NDI)

For IP control and NDI functionality, the camera needs to be connected to a network. The camera typically obtains an IP address via DHCP by default. You can access the camera's web interface by entering its IP address into a web browser for advanced settings, including static IP configuration, NDI settings, and image adjustments.

- **Finding the IP Address:** Use a network scanner tool or the camera's OSD (On-Screen Display) menu (if available via HDMI/SDI output) to find the camera's current IP address.
- **Web Interface:** Open a web browser and enter the camera's IP address to access its configuration page.
- **NDI Discovery:** NDI-enabled applications (e.g., OBS, vMix, Wirecast) will automatically detect the VC-A50PN on the network.

## 7. MAINTENANCE

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### 7.1 Cleaning the Camera

Ensure the camera is powered off and disconnected from all power sources before cleaning.

- **Camera Body:** Use a soft, dry cloth to wipe the camera body. Do not use abrasive cleaners, waxes, or solvents.
- **Lens:** Gently clean the lens with a lens cleaning cloth and a specialized lens cleaning solution. Avoid touching the lens surface with your fingers.

## 7.2 Firmware Updates

Periodically check the Lumens official website for available firmware updates. Firmware updates can improve performance, add new features, or fix bugs. Follow the instructions provided with the firmware update package carefully.

## 8. TROUBLESHOOTING

If you encounter issues with your VC-A50PN camera, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No power	Power adapter not connected; PoE+ not active or faulty cable.	Ensure power adapter is securely connected and outlet is live. If using PoE+, verify the network switch port is PoE+ enabled and the Ethernet cable is functional.
No video output (HDMI/SDI)	Incorrect cable connection; wrong DIP switch settings; display input not selected.	Check HDMI/SDI cable connections. Verify DIP switch settings match desired output resolution/frame rate. Ensure your display/switcher is set to the correct input.
No NDI stream detected	Network issue; camera not powered; firewall blocking NDI.	Ensure camera is powered and connected to the network. Verify the camera has an IP address. Check network firewall settings on your computer/network. Ensure NDI is enabled in the camera's web interface.
PTZ control not responding	IR remote battery low; incorrect control cable; wrong control protocol selected.	Replace IR remote batteries. Check RS-232/RS-422 cable connections. Verify the control software/device is configured for the correct protocol (VISCA, PELCO D/P, NDI).
Image quality issues (blurry, dark, overexposed)	Lens dirty; incorrect exposure/white balance settings.	Clean the lens. Adjust exposure, white balance, and gain settings via the camera's web interface or control software.

If the problem persists after trying these solutions, please contact Lumens technical support.

## 9. SPECIFICATIONS

Below are the detailed technical specifications for the Lumens VC-A50PN PTZ Camera.

Feature	Detail
Model Name	VC-A50PN
Image Sensor	1/2.8" 2MP CMOS
Video Output Resolution	1080p (60/59.94/50/30/29.97/25 fps), 1080i (60/59.94/50 fps), 720p (60/59.94/50 fps)
Optical Zoom	20x
Pan/Tilt Range	Pan: -170° to +170° (Total 340°); Tilt: -30° to +90° (Total 120°)
Video Output Interfaces	HDMI, 3G-SDI, Ethernet (NDI HX)

Feature	Detail
Video Compression	MJPEG, H.264 / SVC
Power Source	DC 12V or PoE+ (IEEE 802.3at)
Control Interfaces	RS-232, RS-422, Ethernet (IP Control)
Control Protocol	VISCA, PELCO D/P, NDI
Minimum Illumination	1.0 Lux (F1.6, 50IRE, 30fps)
Shutter Speed	1/1 ~ 1/10,000 sec
Focal Length	f = 4.7 ~ 94 mm
Dimensions (W x H x D)	174 x 186 x 187mm (6.9 x 7.3 x 7.3 inches)
Weight	2 kg (4.4 lbs)
Color	White
Operating Temperature	0°C to 40°C (32°F to 104°F)

## 10. WARRANTY & SUPPORT

### 10.1 Warranty Information

Lumens products are designed for reliability and performance. For detailed warranty terms and conditions, please refer to the warranty card included with your product or visit the official Lumens website. The warranty typically covers defects in materials and workmanship under normal use for a specified period from the date of purchase.

### 10.2 Technical Support

If you require technical assistance or have questions regarding the operation or maintenance of your Lumens VC-A50PN camera, please contact Lumens technical support. Before contacting support, please have your product model number (VC-A50PN) and serial number ready. You can find contact information on the official Lumens website.

- **Online Resources:** Visit the Lumens website for FAQs, drivers, firmware updates, and additional documentation.
- **Contact Information:** Refer to the Lumens website for phone numbers, email addresses, and support hours for your region.

