

Tenveo TEVO-VHD20HAN (EU-CA-VHD20H-AI-N)

Tenveo PTZ NDI Camera with AI Auto Tracking - User Manual

Model: TEVO-VHD20HAN (EU-CA-VHD20H-AI-N)

1. INTRODUCTION

This manual provides instructions for the Tenveo PTZ NDI Camera with AI Auto Tracking. This camera is designed for professional videoconferencing and live streaming applications, offering high-quality video capture and advanced features for various environments.

Key features include:

- Full HD 1080P resolution at 60 frames per second (FPS)
- 20x optical zoom for detailed imaging
- AI-powered humanoid and face auto-tracking
- Multiple video output interfaces: USB3.0, HDMI, and LAN with Power over Ethernet (PoE) support
- NDI protocol support for low-latency IP-based production workflows



Image 1.1: Overview of Tenveo PTZ NDI Camera features, including 20x zoom, AI tracking, NDI, PoE, USB3.0/HDMI/LAN, 1080P 60FPS, and 61-degree field of view.

2. SETUP

2.1. Package Contents

Verify that all items are present in the package:

- Tenveo PTZ NDI Camera
- IR Remote Control
- Wall Mount
- USB3.0 Cable
- 12V 2A Power Adapter
- Mounting Screws
- User Manual (this document)

2.2. Installation Methods

The PTZ camera supports various installation methods to suit different environments:

- **Desktop Mounting:** Place the camera on a flat, stable surface.
- **Wall Mounting:** Use the provided wall mount and screws to secure the camera to a wall.
- **Ceiling Mounting:** Attach the camera to the ceiling using appropriate mounting hardware (not always included, check specific model).
- **Tripod Mounting:** The camera can be mounted on a standard tripod for portable setups.



Image 2.1: Illustration of various installation methods: wall, ceiling, desktop, and tripod mounting.

2.3. Connecting the Camera

The camera offers multiple connectivity options:

1. **Power Connection:** Connect the 12V 2A power adapter to the camera's power input. Alternatively, if using a PoE-enabled network, connect an Ethernet cable from a PoE switch to the camera's LAN port.
2. **USB3.0 Connection:** Connect the provided USB3.0 cable from the camera to your computer for direct video and control.
3. **HDMI Connection:** Connect an HDMI cable from the camera to a display or video mixer.
4. **LAN Connection (IP/NDI):** Connect an Ethernet cable from the camera's LAN port to your network router or switch. This enables IP streaming, NDI streaming, and IP control.



Image 2.2: Diagram illustrating easy plug-and-play installation: connecting to a local network with PoE, accessing the camera's



Image 2.3: Diagram showing the camera's multiple connection interfaces including power, USB3.0, HDMI, and LAN, and how they integrate into a streaming setup with a joystick controller and display devices.

3. OPERATING INSTRUCTIONS

3.1. PTZ Control (Pan, Tilt, Zoom)

The camera features pan, tilt, and zoom capabilities. Pan allows horizontal movement, tilt allows vertical movement, and zoom adjusts the focal length. The 20x optical zoom provides clear magnification without loss of quality.

20X Zoom optique
Champ de vision large 61°



Image 3.1: The camera's 20x optical zoom and pan (350°) and tilt (180°) capabilities, shown in a church setting.

3.2. AI Auto Tracking

The camera incorporates advanced AI algorithms for humanoid and face auto-tracking, ensuring subjects remain centered and in focus during movement. This feature supports both Presenter mode and Auto Cropping.

- **Presenter Mode:** Tracks a single designated speaker.
- **Auto Cropping:** Automatically adjusts the frame to keep the subject optimally positioned.
- **Uninterrupted Tracking:** Maintains smooth tracking even if the target is temporarily obscured or moves quickly.



Scénarios à Cible Unique

Suivi Automatique IA

Reconnaissance Précise des Humanoïdes et des Visages

Image 3.2: Illustration of AI Auto Tracking with precise humanoid and face recognition.

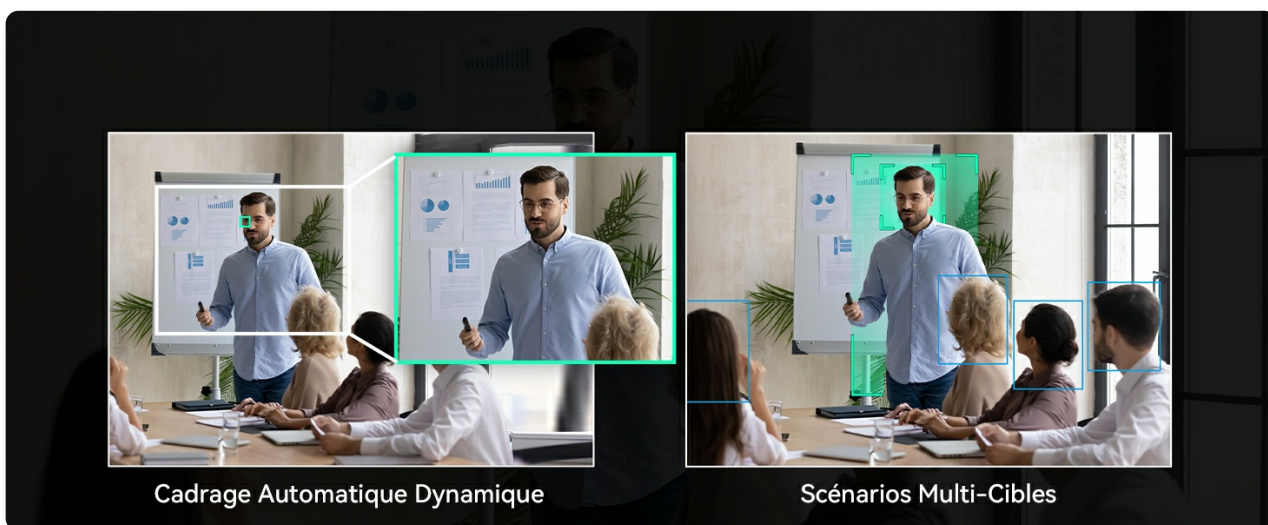


Image 3.3: Comparison of Dynamic Auto Framing for a single target and Multi-Target Scenarios, showing how the camera adapts its framing.

3.3. Control Methods

The camera can be controlled via the included IR remote control or a web interface.

3.3.1. Remote Control

Use the IR remote control to manage PTZ functions, AI tracking, and other camera settings.

- **Auto Framing:** Press the dedicated button to activate/deactivate auto framing.
- **Activate AI Tracking:** Briefly press the AI button, then select the target (if multiple are present), and confirm.
- **Deactivate AI Tracking:** Briefly press the auto framing button to exit tracking, or press the AI button directly to disable AI (returns to normal mode).

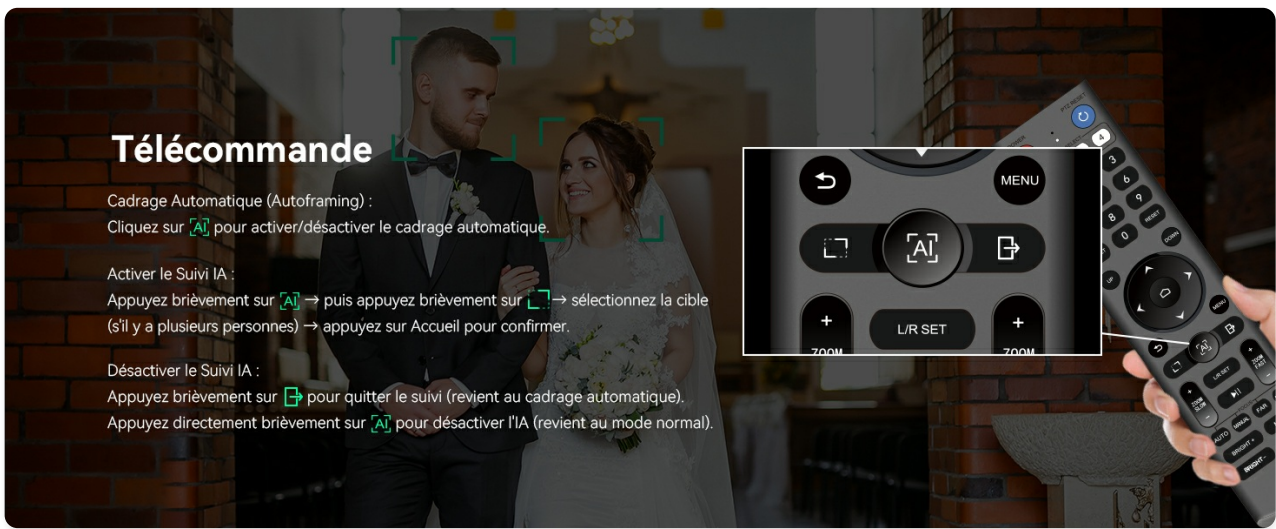


Image 3.4: The IR remote control, highlighting buttons for auto framing and AI tracking activation/deactivation.

3.3.2. Web Interface Control

Access the camera's web interface by entering its IP address in a web browser. The interface allows for comprehensive control over PTZ movements, tracking modes, image settings, and network configurations.

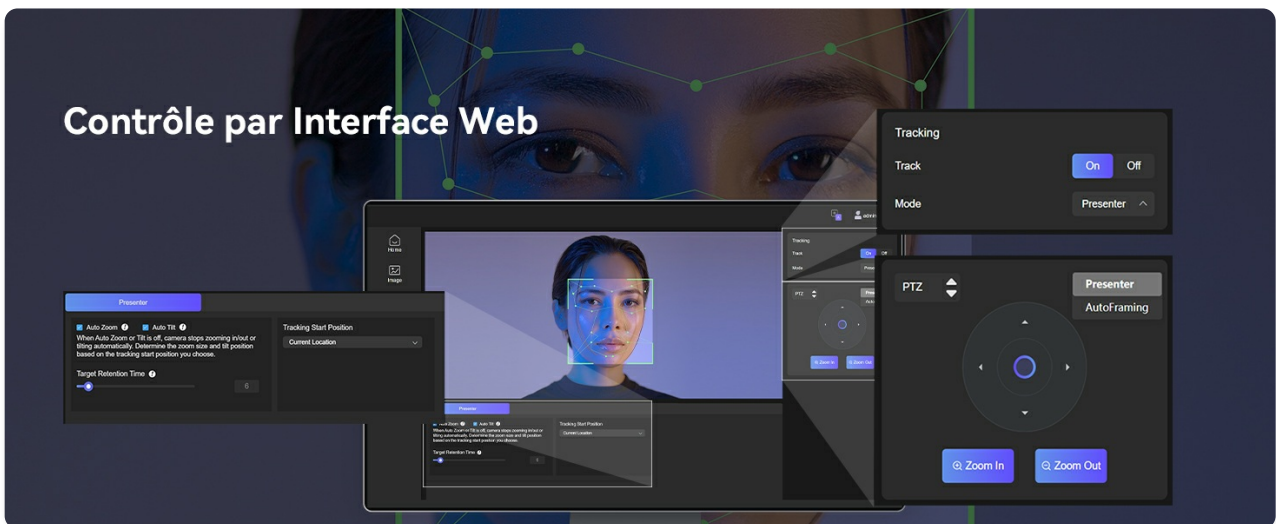


Image 3.5: Screenshot of the web interface for controlling the camera, showing options for tracking, PTZ, and various settings.

3.4. Live Streaming and Connectivity

The camera supports various streaming protocols and integrates with popular platforms:

- **NDI Protocol:** Enables low-latency, high-quality video streaming and PTZ control over IP networks.
- **RTMP, RTSP, SRT:** Compatible with these protocols for direct broadcasting to platforms like YouTube, Facebook, OBS, vMix, and more.
- **Multi-Camera Synchronization:** Supports multi-camera setups for complex productions, compatible with video mixers and Tenveo PTZ controllers.

Tenveo NDI AI-Tracking PTZ Camera

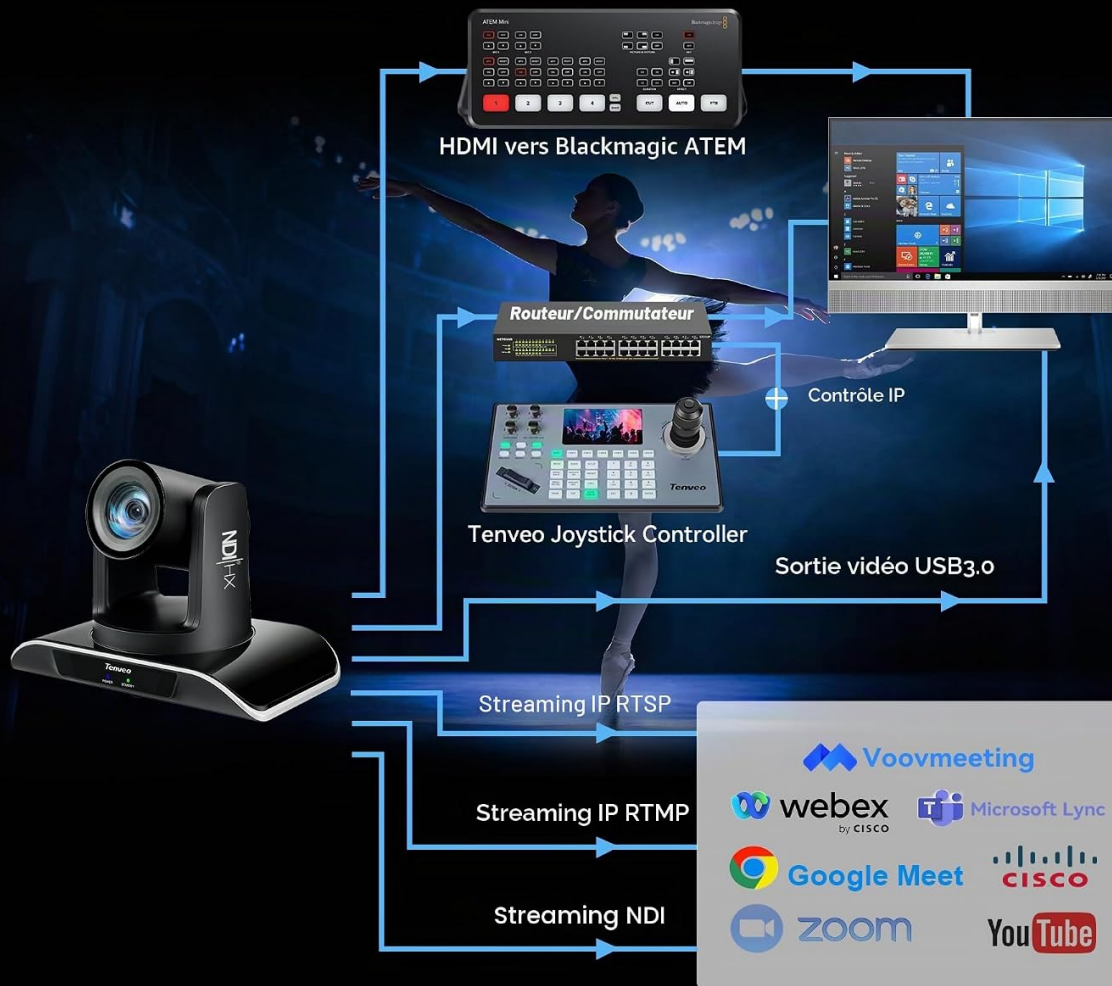


Image 3.6: System diagram showing the Tenveo NDI AI-Tracking PTZ Camera connected via HDMI to a Blackmagic ATEM, USB3.0 to a computer, and LAN for IP control and streaming (RTSP, RTMP, NDI) to various platforms like Zoom, Google Meet, Webex, and YouTube.

4. MAINTENANCE

To ensure optimal performance and longevity of your Tenveo PTZ NDI Camera, follow these maintenance guidelines:

- **Cleaning:** Gently wipe the camera lens with a soft, dry, lint-free cloth. For the camera body, use a slightly damp cloth and avoid harsh chemicals or abrasive materials.
- **Environment:** Operate and store the camera in a clean, dry environment, away from extreme temperatures, humidity, and direct sunlight.
- **Handling:** Avoid dropping or subjecting the camera to strong impacts. When adjusting manually, do so gently.
- **Power:** Always use the provided power adapter or a compatible PoE switch to prevent electrical damage.

5. TROUBLESHOOTING

If you encounter issues with your Tenveo PTZ NDI Camera, consider the following basic troubleshooting steps:

- **No Power:** Ensure the power adapter is securely connected to both the camera and a working power outlet, or that the PoE switch is active and providing power through the Ethernet cable.
- **No Video Output:** Check all video cable connections (USB, HDMI, LAN). Verify that the correct input source is selected on your display or video mixer. Ensure drivers are installed for USB connections if required by your operating system.
- **No PTZ Control:** Confirm that the remote control batteries are functional and that there are no obstructions between the remote and the camera's IR receiver. For IP control, verify network connectivity and the camera's IP address.
- **Tracking Issues:** Ensure the lighting conditions are adequate and that the subject is clearly visible to the camera. Avoid rapid, erratic movements that might exceed the tracking system's capabilities.
- **Poor Image Quality:** Check for dirt or smudges on the lens. Ensure the camera's resolution and frame rate settings are appropriate for your setup.

For more complex issues or persistent problems, please refer to the support section for assistance.

6. SPECIFICATIONS

Feature	Specification
Brand	Tenveo
Model Number	EU-CA-VHD20H-AI-N
Model Name	TEVO-VHD20HAN
Color	Matte Black
Photo Sensor Technology	CMOS
Video Recording Resolution	1080p
Max Focal Length	99 Millimeters
Min Focal Length	4.95 Millimeters
Max Aperture	1.8 f
Min Aperture	3.9 f

Feature	Specification
Optical Zoom	20x
Digital Zoom	8x
Connectivity Technology	USB, HDMI, LAN
Optical Sensor Size	1/2.8 inch
Image Stabilization	Optical
Focus Type	Auto Focus, Manual Focus
Video Capture Format	MP4
Supported Audio Format	AAC, MP3
Recommended Uses	Live streaming, religious services, video production, videoconferencing, education, live events
Compatible Devices	Laptop, Personal Computer, Tablet, Smartphone

7. WARRANTY AND SUPPORT

7.1. Product Warranty

The Tenveo PTZ NDI Camera comes with a standard **3-year warranty** covering parts and labor. This warranty ensures your product is free from defects in materials and workmanship under normal use.

Additionally, Tenveo offers a **30-day money-back guarantee** for risk-free purchase.

7.2. Technical Support

Tenveo provides **lifetime technical support** for this product. If you have any questions, require assistance with installation, or encounter any issues, please contact our support team.

Our support team aims to respond within 12 hours and provide a satisfactory solution. Remote assistance for installation can be provided if necessary.

Contact Email: sales@tenveo.com