

FoMaKo K820S

FoMaKo K820S 12G-SDI 4K 60FPS NDI PTZ Camera

INSTRUCTION MANUAL

Introduction

This manual provides detailed instructions for the setup, operation, and maintenance of your FoMaKo K820S 12G-SDI 4K 60FPS NDI PTZ Camera. Designed for professional video production and live streaming, this camera features advanced AI tracking, 20X optical zoom, and multiple high-quality video output interfaces. Please read this manual thoroughly before using the product to ensure optimal performance and longevity.

12G-SDI

The transmission rate of 12G-SDI is 12Gbit/s,
which is four times that of 3G-SDI

Simultaneous compatibility: 3G/HD/SD-SDI



HDMI

4K@60fps

USB 3.0

4K@30fps

12G-SDI
4K@60fps

LAN / PoE / NDI|HX3
4K@60fps

Figure 1: Front view of the FoMaKo K820S PTZ Camera.

What's in the Box

Verify that all items listed below are included in your package:

- FoMaKo 12G-SDI 4K 60FPS AI Tracking NDI PTZ Camera (20x optical zoom)
- Remote Controller
- Wall Mount
- Ceiling Bracket

- USB Cable
- Power Adapter 12V 2A
- User Manual

Product Overview

The FoMaKo K820S is a high-performance PTZ camera designed for versatile professional applications. Key features include:

- **4K 60FPS Video:** Utilizes a low-power, high-performance Ambarella 4KP60 AI vision chip and a 1/1.8-inch UHD CMOS sensor for uncompressed 4K (3840x2160) at 60fps.
- **Advanced AI Auto-Tracking (Gen 3):** Offers customized tracking features including adjustable tracking modes, sensitivity, figure size, AI-Track Speed, horizontal tracking, character position, and lost target action. Activate by pressing F3 on the remote.
- **NDI | HX3 & NDI | HX2 Support:** NDI License Included (Officially Approved by Newtek Inc.) for low-latency, high-quality video transmission over network, even with low bandwidth.
- **FreeD Protocol:** Delivers real-time, high-precision 3D spatial tracking (camera position, angle, lens data) for seamless virtual/augmented reality integration in live productions.
- **Multiple Video Output Interfaces:** Simultaneous 12G-SDI, NDI/LAN, USB3.0 Type-C, and HDMI 2.0 outputs.
- **20X Optical Zoom with 16x Digital Zoom:** Provides a maximum field angle of 60 degrees (FOV) for detailed capture.
- **PoE (Power over Ethernet):** Allows power, control, and video/audio streaming via a single network cable.
- **Leading Auto-Focus (AF) Technology:** Fast, accurate, and stable AF with adjustable Pan/Tilt/Zoom speeds and preset speeds. Supports Auto/Manual/One Push Focus modes.



Figure 2: Rear view of the camera showing various input/output ports.

Setup

Follow these steps to set up your FoMaKo K820S PTZ Camera:

1. **Power Connection:** Connect the provided 12V 2A power adapter to the DC 12V port on the camera. Alternatively, if using PoE, connect an Ethernet cable from a PoE-enabled switch to the LAN port.
2. **Video Output:** Connect your preferred video output cable (12G-SDI, HDMI, USB3.0, or Ethernet for NDI/LAN) to your display, capture card, or streaming device.
3. **Network Connection:** For NDI/LAN control and streaming, connect an Ethernet cable to the LAN port. Ensure your network is properly configured for IP communication.
4. **Audio Input:** If external audio is required, connect an audio source to the LINE IN port.
5. **Control Connection:** For external control, connect an RS232 or RS485 cable to the respective ports, or use the network connection for IP-based control.
6. **Power On:** Flip the ON/OFF switch to the 'ON' position. The camera will perform a self-test and the LCD screen will display its IP address and resolution.

Video 1: Unboxing and initial setup of the K820S 4K NDI PTZ Camera. This video demonstrates the physical components and basic connections.

Operating

AI Auto-Tracking

The K820S features advanced AI auto-tracking to keep your subject in frame automatically. To activate:

- Press the **F3** button on the remote control to enable AI Auto-Tracking.
- Use the left and right buttons on the remote control to switch between tracking targets if multiple subjects are present.
- Customize tracking modes, sensitivity, figure size, and speed via the camera's web interface.

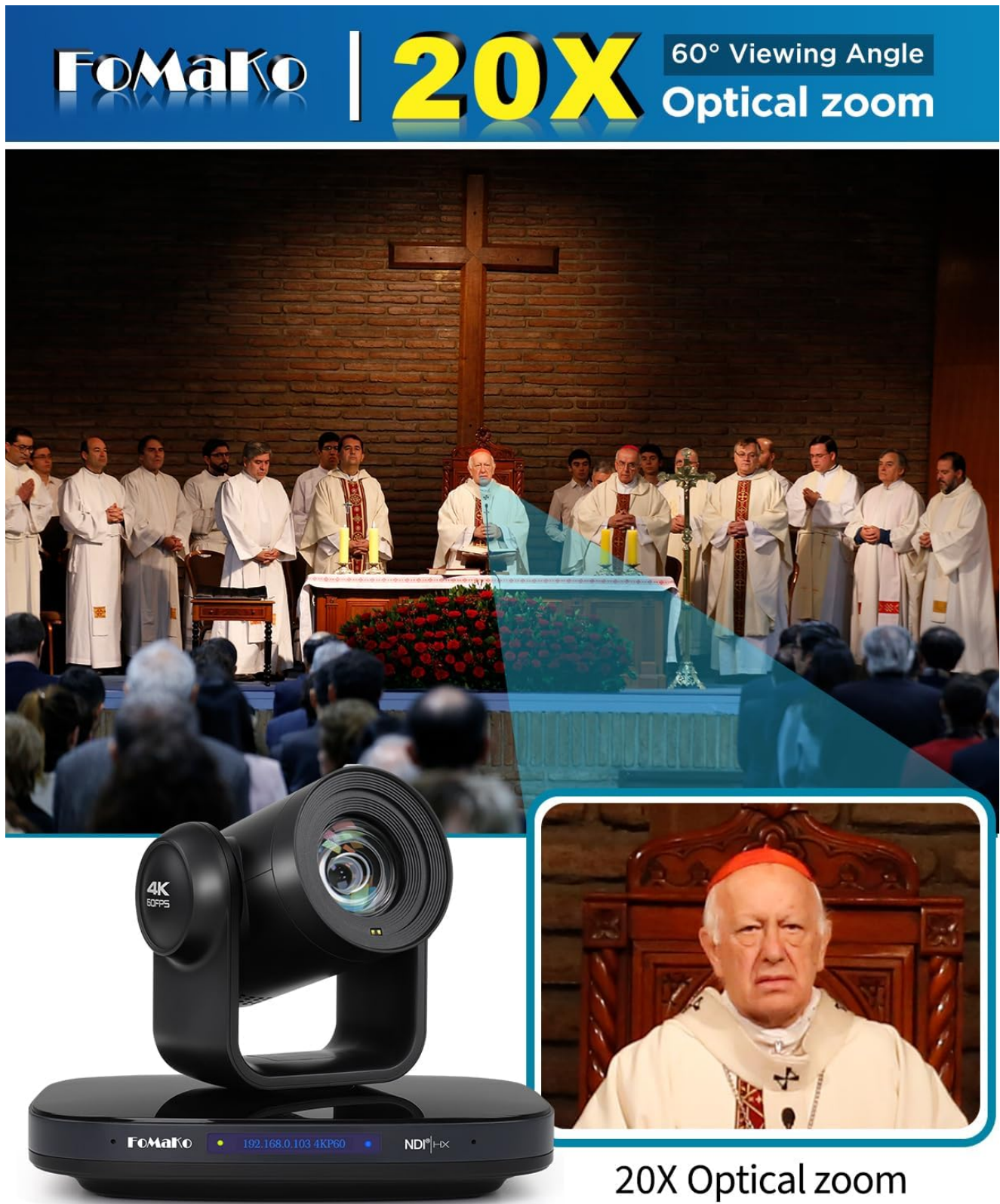


Figure 3: AI Auto-Tracking in action, keeping the presenter centered.

Pan, Tilt, and Zoom Control

Use the included remote control or an external PTZ controller (e.g., joystick controller) to adjust the camera's pan, tilt, and zoom. Preset positions can be saved and recalled for quick scene changes.

- **Remote Control:** The remote allows for direct control of pan, tilt, zoom, focus, and preset recall. Supports ultra-long distance control up to 50 meters.
- **External Controller:** Compatible with FoMaKo PTZ Camera controllers and third-party software like vMix/OBS for multi-camera production.

Video 2: Demonstrates the integration and preset configuration with a FoMaKo controller.

Auto-Focus

The camera features industry-leading auto-focus technology. You can switch between Auto, Manual, or One Push Focus modes as needed.

Connectivity

The K820S offers a wide range of connectivity options for various production environments:

- **12G-SDI:** Professional broadcast-grade interface supporting 4KP60, 4KP59.94, 4KP50, 4KP30, 1080P60, 1080I60, 1080I50, etc.
- **HDMI 2.0:** Supports 4KP60, 4KP59.94, 4KP50, 4KP30, 1080P60, 1080I60, 1080I50, etc.
- **USB3.0 Type-C:** Supports 4KP30, 1080P60, etc. for direct connection to computers.
- **LAN/NDI:** Supports 4KP60, 1080P60, etc. for network-based video transmission and control, including NDI | HX3 and NDI | HX2.
- **RS232/RS485:** For serial control from external PTZ controllers.

Video 3: Explains NDI advantages, tools, and usage guidelines for FoMaKo PTZ cameras.

Installation

The FoMaKo K820S offers flexible installation options:

- **Wall Mount:** Use the provided wall mount bracket to secure the camera to a wall.
- **Ceiling Mount:** Utilize the ceiling bracket for inverted mounting. The built-in gravity sensor supports automatic image flip.
- **Tripod Mount:** The camera can be mounted on a standard tripod for portable setups.

FoMaKo

Ultra Long Range Remote Controller

(Support upto **50m** remote control)



Figure 4: Example of wall mount installation for the PTZ Camera.

Specifications

Feature	Detail
Brand	FoMaKo
Model Number	K820S

Item Weight	9 pounds
Package Dimensions	11.65 x 10.16 x 9.76 inches
Photo Sensor Technology	CMOS
Video Capture Resolution	4K
Maximum Focal Length	92 Millimeters
Maximum Aperture	2.9 f
Video Capture Format	MP4
Supported Audio Format	AAC, MP3, PCM
Screen Size	2 Inches (LCD screen for IP address and resolution)
Connectivity Technology	12G-SDI, NDI, LAN, HDMI, USB3.0
Special Features	AI tracking PTZ Camera, PoE support, FreeD Protocol

Troubleshooting

If you encounter issues with your camera, consider the following:

- **No Power:** Ensure the power adapter is securely connected and plugged into a working outlet, or that the PoE connection is active and providing power.
- **No Video Output:** Check all video cable connections (HDMI, SDI, USB, Ethernet). Verify the display or receiving device is set to the correct input. Ensure the camera's resolution and frame rate settings are compatible with the receiving device.
- **Network/NDI Issues:** Confirm the Ethernet cable is properly connected. Check the camera's IP address on the LCD screen and ensure it's on the same subnet as your control device. Verify NDI tools/software are correctly configured.
- **AI Tracking Malfunction:** Ensure AI tracking is enabled (F3 on remote). Check for any obstructions in the camera's view or extreme lighting conditions that might interfere with tracking.
- **Control Issues:** Verify the remote control has fresh batteries and a clear line of sight. For serial control, check cable connections and baud rate settings. For IP control, confirm network connectivity and correct IP address.

Warranty & Support

Your FoMaKo K820S PTZ Camera comes with comprehensive support:

- **3-Year Limited Warranty:** Shop with confidence.
- **30-Day Money-Back Guarantee:** Risk-free purchase.
- **Free Online Training:** Get started easily with available training resources.
- **24/7 Expert Assistance:** Responses within 24 hours (please include your Order ID for prompt service). Remote assistance for setup is available if necessary.
- **Lifetime Customer Technical Support:** Your satisfaction is our priority.



Figure 5: FoMaKo offers 24/7 expert assistance and lifetime technical support.