



MAKI LIVE



This manual applies to models **BDMKLB** and **BDMKLW**

USER GUIDE



FCC NOTICE



This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Federal Communication Commission (FCC) Radiation Exposure Statement

When using the product, maintain a distance of 20cm from the body to ensure compliance with RF exposure requirements.



WARNING

Operating this equipment in a residential environment may cause radio interference.

European Community Compliance Statement



- RF exposure information: The Maximum Permissible Exposure (MPE) level has been calculated based on a distance of $d=20$ cm between the device and the human body. To maintain compliance with RF exposure requirement, use product that maintain a 20cm distance between the device and human body.
- Declaration of Conformity Hereby, You Tec Ltd declares that the radio equipment type X3 is in compliance with directive 2014/53/EU and RER 2017 (SI 2017/1206).

Welcome to MAKI Live!

Congratulations on your new MAKI Live camera! This guide will walk you through setting up your camera, using its features, and making the most out of your new live production tool. Whether you're a content creator, educator, or live streamer, MAKI Live makes it easy to produce high-quality video with minimal effort.



What's in the Box?

Before getting started, ensure you have everything you need:

- MAKI Live Camera with inbuilt rechargeable Battery
- USB-C Charging Cable
- Quick Start Guide
- Optional Accessories (Tripod Socket)

MAKI Connectors and features

Front

- 3x Optical Zoom
- HALO Tally (capable of RGB colour adjustment)
- 2x AI enhanced Microphones
- TOF advanced Autofocus Sensor

Rear

- Rear Tally LED
- Status/Battery charge indicator LEDs
- Power/Record Button
- HDMI port
- USB-C accessory port w/screw thread
- Micro SD/TF slot

On bottom of isometric image show 1/4-20 tripod and accessory mounting thread

Getting Started

Turning On Your MAKI Live

Power On

Press and hold the power button for 2 seconds until the rear Tally LED indicator lights up. MAKI will go through a startup sequence which is shown on the 4 LED status lights beneath the rear Tally LED indicator, startup is complete when the status LEDs settle to show battery charge level, power on sequence is complete.

Charge If Needed

If the camera doesn't turn on, connect the USB-C cable to charge the built-in battery. Depending on your USB Charging source to fully charge the battery can take from 30 minutes to several hours.

Check the LED Indicator

1. Slow fade white: MAKI Live is operational, but not connected to a network
2. Blinking Blue: MAKI Live is connecting to your selected WiFi network
3. Solid White: MAKI Live is operational but not live on air
4. Solid Red: MAKI Live is displaying Tally indicator that the camera is live on air
5. Solid Green: MAKI Live is displaying Tally indicator that the camera is in preview position for next on air

Setting Up for the First Time

Download the MAKI Live App

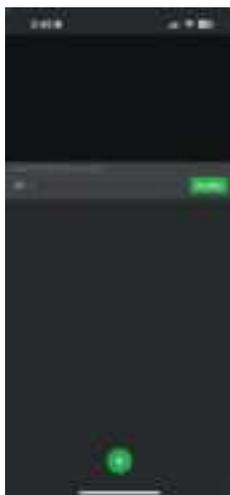
To set up and control your MAKI Live camera, download the MAKI Live App from your device's app store. The app is available for both iOS and Android devices. Simply search for "MAKI Live" in the Apple App Store or Google Play Store, then install the application on your smartphone or tablet. This app provides full access to camera settings, live monitoring, and advanced controls, ensuring a seamless experience with MAKI Live.

Connect Your Camera to the MAKI Live App and a WiFi network

Open the MAKI Live app and follow the setup wizard to pair your camera.



Press the + button at the bottom of the screen to connect your new MAKI Live camera



MAKI Live can operate in two distinct network modes, WiFi Client and AP mode.

WiFi Client mode

In WiFi Client Mode, MAKI Live connects to an existing WiFi network, allowing seamless interaction with other computers and NDI devices on the same network. This mode is ideal for use in studios or permanent setups where a stable and consistent network connection is required. By joining the local network, the camera can easily integrate into professional workflows, enabling high-quality live streaming, remote control, and multi-camera productions with minimal setup effort.



WiFi AP (Access Point) Mode

In AP Mode, a selected MAKI Live camera acts as a WiFi hotspot, allowing other devices such as an iPhone, iPad, or computer to connect directly to the camera's network. This enables real-time video transmission without needing an existing WiFi network, making it ideal for remote operations and on-the-go shooting in any indoor or outdoor location. If using multiple MAKI Live cameras, only one should be set as the AP, while additional cameras should join its network in AP mode. This setup ensures a stable connection for seamless live production workflows without reliance on external networks.

Note: AP mode only supports 2.4GHz WiFi and 5G WiFi (U-NII-1,U-NII-3).



Connecting your MAKI Live in WiFi Client Mode

Before you begin, ensure your iPhone or Android device is connected to the WiFi network you wish the MAKI Live to connect to.

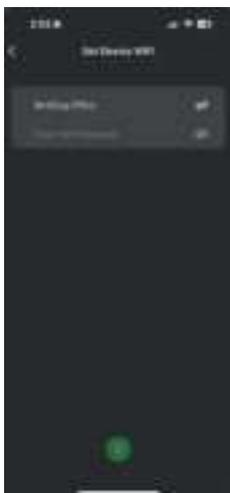
Select the WiFi Client Mode and press the next > Arrow



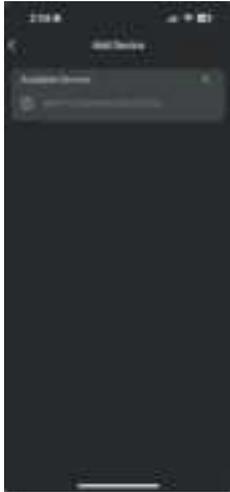
Ensure your network is accessible via the MAKI Live app by accepting 'Allow While Using App' or similar popup security prompt



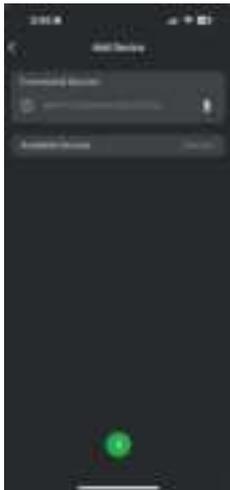
You will now need to enter your WiFi SSID password to configure the camera to connect to your WiFi network. When completed press the > Next button



The app will now scan via Bluetooth to find any MAKI Live cameras nearby, if your MAKI Live is powered on it will be displayed in the list of Available Devices.



Select your device, this will automatically configure your MAKI Live to connect to the selected WiFi network. You will receive a prompt on your iPhone to connect to the MAKI WiFi access point during this process. Once Complete the MAKI Live will appear in the Connected Devices list



Once paired, you can adjust settings and preview your feed from the app. If you have more than one MAKI Live repeat the above steps to configure subsequent units.

Press the > Next button to return to the home screen

Connecting your MAKI Live in AP Mode

Before you begin, ensure your iPhone is connected to the WiFi network you wish the MAKI Live to connect to.

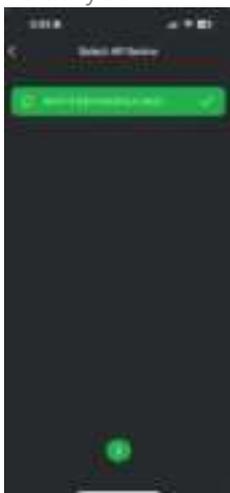
Select the AP mode and press the > arrow



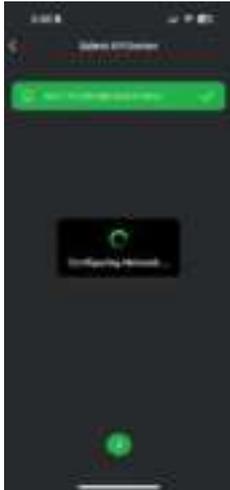
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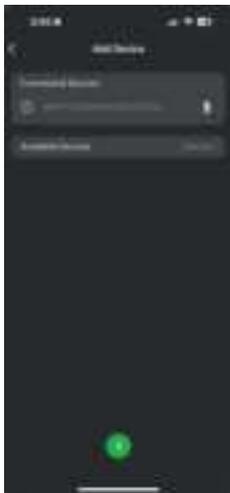
Select your MAKI Live from the list to act as your AP device and press the > button



The app will configure MAKI Live to operate as AP mode



Once Complete the MAKI Live will appear in the Connected Devices list



Once paired, you can adjust settings and preview your feed from the app. If you have more than one MAKI Live repeat the above steps to configure subsequent units.

Press the > Next button to return to the home screen

Operating the MAKI Live mobile application

Now that you have a MAKI Live connected to your mobile application you can monitor, configure and interact with your camera. The MAKI Live application features the following design:



(Highlight the Video Preview area, Active camera selection with red box, audio level meters for active camera)

Configuring basic camera functions

You can configure main camera functions directly from the application including image adjustments, network operations, enabling USB Webcam or accessory connectivity and firmware updates.

Press the Setup icon inside the active camera window and select Setup



You will now enter the camera setup screen

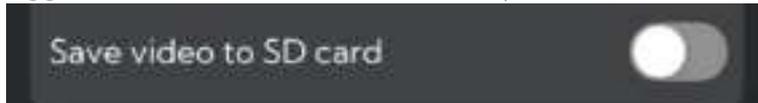


Common controls are available in the camera setup screen which allow you to select the Zoom ratio and Auto/Manual/TOF focus operation - see camera operation functions later in this user guide for further information.

Saving video to a MicroSD Card

MAKI Live supports recording video directly to a MicroSD/TF card if present, to enable this function

toggle 'Save video to SD card' to the ON position.



Note. You can enable recording start/stop by short single pressing the power button on the back of the camera, the tally LED indicator will briefly flash red when recording starts.

AI Settings

MAKI Live supports AI background noise isolation and zoom gesture control. To this section allows you to modify AI settings so your camera operates in the desired fashion.

AI Denoise Level



This function continuously monitors background noise and isolates the voices of people on camera. You can adjust the sensitivity using the drop-down menu:

OFF

Disables AI Denoise, allowing all background sounds to be recorded. Recommended for outdoor use when ambient audio is desired.

LOW

Reduces minor background noises, such as fan hums and light environmental sounds.

MID

Suppresses background voices and conversations while preserving the natural sound of people speaking to the camera.

HIGH

Aggressively removes surrounding noise, making it ideal for loud environments. To ensure clear audio, speakers must be close to the camera, as distant sounds may be filtered out.

Gesture Settings



MAKI Live supports gesture recognition for hands-free zoom control. To use this feature, the camera must recognize your face and shoulders—either in a close-up or full-body framing.

Zoom In

Raise an open hand to shoulder height.

Zoom Out

Raise a closed fist to shoulder height.

This intuitive control allows seamless operation without touching the camera.

Device Settings

LED Settings

The LED settings allow you to customize how MAKI Live's HALO tally LED and rear tally LED operate. By default, these LEDs display color-coded status indicators for different operational modes.

Enabling the Switch LED option gives you additional customization options:

White LED

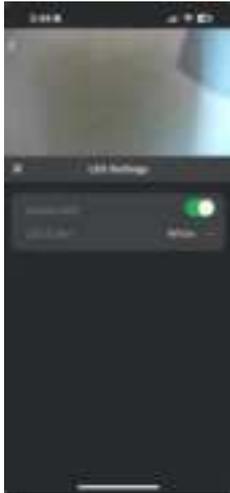
Keeps the LED light solid white.

Custom Color

Set the LED to a specific color of your choice.

RGB Cycle

Continuously cycles through RGB colors.



This feature provides flexibility in how the camera's LED indicators function based on your preference or production needs.

NDI® Settings



MAKI Live supports NDI® | HX2 and NDI® | HX3, enabling high-quality, low-latency audio/video transmission and full camera control over a standard computer network. You can configure resolution, frame rate, and compression settings to match your production environment.

Selecting Resolution & Frame Rate

For the best performance, MAKI Live's resolution and frame rate should match your overall production settings or your live-streaming output format.

- If your production runs at 30p, select a 30p format in the NDI settings.
- If an exact match isn't available, choose a frame rate that aligns as a fraction of the desired format. For example, if your production is in 60p, setting MAKI Live to 30p ensures compatibility while maintaining smooth motion.

Enabling NDI Streaming

To activate NDI streaming over WiFi, toggle NDI Enable in the settings menu.

Once enabled, MAKI Live will announce its presence on the network, and its connection details will be displayed in the NDI Name field.

To monitor NDI® video, you'll need an NDI® | HX-compatible viewer, such as:

- Free NDI Studio Monitor - Downloadable at www.ndi.video
- BirdDog PLAY hardware decoder - Available at www.birddog.tv

Compression & Network Bandwidth Considerations

MAKI Live offers multiple compression settings to balance video quality and network bandwidth usage.

Ultra

Enables NDI® | HX3 for the highest quality and lowest latency while maintaining efficient bandwidth usage. This setting is ideal for professional workflows where image fidelity is a priority.

High

Provides excellent video quality with slightly more compression, reducing bandwidth while maintaining sharp details.

Medium

Offers a balanced approach between quality and efficiency, recommended for most network conditions.

Low

Applies the highest compression to minimize bandwidth usage, ideal for constrained network environments or remote streaming with limited connectivity.

Selecting the appropriate setting ensures optimal performance based on your network capabilities and production needs.

Tip: When operating at Ultra or High Quality settings, ensure your WiFi network has sufficient bandwidth to handle the data load.

Advanced NDI Settings

NDI Group Name

NDI devices on a network can be grouped to limit visibility and control access. Setting an NDI Group Name ensures that MAKI Live is only discoverable by NDI-enabled devices/software configured with the same group name. This is useful in shared environments where multiple NDI sources exist.

Multicast Transmission

By default, NDI operates using Unicast, where each receiving device establishes a direct connection with the NDI source, consuming additional network bandwidth per viewer.

Multicast allows a single stream to be transmitted once and shared across multiple devices, significantly reducing bandwidth usage on large-scale productions.

When to use Multicast

- If multiple devices need to receive the same NDI feed.
- If operating in high-bandwidth environments with managed network switches that support IGMP Snooping.
- If you need to reduce network congestion in setups with many viewers.

Note: Multicast requires a properly configured network with IGMP support to function correctly. Using it on an unmanaged network may cause excessive traffic or performance issues.

NDI Discovery Server

NDI Discovery Server is used to register and manage NDI sources across larger or segmented networks, helping devices efficiently locate and communicate with each other.

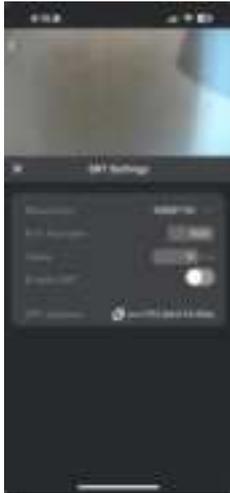
When to use Discovery Server

- If NDI devices are on separate subnets or VLANs where automatic discovery may not work.
- If using a corporate or university network where multicast or broadcast discovery is restricted.
- If you want faster and more reliable NDI source detection in complex network environments.

To enable NDI Discovery Server, enter the server's IP address in the settings menu. Once configured, MAKI Live and other NDI devices will register with this centralized server rather than relying on local network discovery.

SRT Settings

MAKI Live supports SRT (Secure Reliable Transport) for transmitting high-quality, low-latency video over the internet or private networks. SRT is ideal for remote production, streaming over unpredictable networks, and secure video delivery.



Selecting Resolution & Frame Rate

As with NDI, the resolution and frame rate should match your production settings or live-streaming output format to ensure smooth playback.

Match your production

If your workflow is in 30p, select 30p in the SRT settings.

Closest match

If an exact frame rate isn't available, choose the nearest fraction of your production format (e.g., if working in 60p, set MAKI Live to 30p).

Enabling & Configuring SRT

To activate SRT streaming, toggle SRT Enable in the settings menu.

SRT Connection Details

SRT Port Number - Defines the port used for receiving SRT streams. The default port should be set based on your network configuration.

Delay (ms) - Sets the buffering delay in milliseconds.

- A lower delay is ideal for real-time interactions but requires a stable network.
- A higher delay helps compensate for unstable network conditions, ensuring smoother playback.

SRT Address - Once configured, you can copy the SRT stream address from the interface and paste it into an SRT-compatible monitoring app or receiving device.

Important: MAKI Live operates in SRT Listener mode only, meaning it waits for an incoming SRT Caller connection. The remote receiving device or software must be set to Caller mode to establish the connection.

HDMI Output Format

MAKI Live allows you to set an independent HDMI output resolution, separate from the network stream. This ensures maximum flexibility for local monitoring and external video equipment.

Selecting the Right Resolution

Choose the most appropriate resolution based on your display or video switcher requirements:

For TVs and Monitors

Select a resolution that matches the native display resolution of your TV screen or monitor (e.g., 1080p or 4K).

For HDMI Vision Switchers

Choose a format that matches your switcher's input settings to avoid scaling issues or signal incompatibility.

Common HDMI Resolutions

1080p (1920x1080) - 29.97Hz, 25Hz - Standard for HD video production.

4K UHD (3840x2160) - 30Hz, 25Hz - Ideal for high-resolution displays and advanced video workflows.

720p - 30Hz - Used for older HD equipment or lower-bandwidth setups.

Tip: If your HDMI equipment doesn't support the selected resolution, no signal may be displayed. Ensure compatibility before making changes.

Image Settings

The Image Settings section allows you to fine-tune the visual appearance of your MAKI Live camera output. Adjust these settings to optimize image quality for different lighting conditions and environments.



Adjustments

These settings modify the overall look of the video feed:

Contrast

Adjusts the difference between dark and bright areas. Increasing contrast enhances shadows and highlights, while lowering contrast makes the image appear flatter.

Brightness

Controls the overall lightness of the image. Increasing brightness can help in dimly lit conditions, but too much may wash out details.

Saturation

Adjusts the intensity of colors. Higher saturation makes colors more vivid, while lower saturation results in a more neutral or grayscale look.

Sharpness

Enhances edge definition and details. Higher sharpness can make images appear clearer, but excessive sharpness may introduce visual artifacts.

WDR (Wide Dynamic Range)

Enabling WDR helps balance exposure between bright and dark areas, making details visible in high-contrast lighting situations. This is useful for scenes with bright backlights or shadows.

BLC (Backlight Compensation)

Turning on BLC enhances the exposure of subjects positioned against bright backgrounds (e.g., a person in front of a window). It prevents underexposure in these situations.

Exposure Mode

The Exposure Mode setting controls how MAKI Live adjusts brightness based on different measurement methods. Selecting the right mode ensures optimal exposure for various shooting conditions.

Average

Measures brightness across the entire frame and adjusts exposure to provide a balanced overall image. Best for evenly lit environments.

Region

Allows you to manually select an exposure point within the frame. Tap on the video preview to set the area where the camera should prioritize exposure. This is useful when your subject is in a specific part of the frame rather than the center.

Central

Prioritizes exposure adjustments for the center of the frame, ensuring the main subject is well-lit, even in high-contrast scenes. Ideal for portraits and single-person shots.

Tip: If your subject appears too dark or bright, switch to Region mode and tap on their face or the most important part of the scene to optimize exposure.

Scene Selection

This setting optimizes the camera's image profile to suit different production styles:

Normal

Provides a balanced, natural-looking image for general use.

Live

Enhances contrast and sharpness for a more dynamic, TV-like image profile, making the picture look more engaging for live broadcasts or streaming.

Tip: Use Live mode when you want a more cinematic or broadcast-quality look.

Anti-Flicker

This setting helps eliminate flickering caused by artificial lighting, which varies by region:

Outdoor

Optimized for natural lighting where artificial light flickering is not a concern.

50Hz

Recommended for regions using 50Hz power frequency (e.g., Europe, Australia, most of Asia & Africa).

60Hz

Recommended for regions using 60Hz power frequency (e.g., North America, Japan).

Tip: If you notice screen flickering indoors, select the frequency that matches your region's power standard.

Restore Default

Resets all image settings to factory defaults.

USB Host Settings

The USB Host Setting allows you to configure how MAKI Live utilizes its USB-C port, providing flexibility for different workflows and installation types.

UVC (Webcam Mode)

Enables USB Video Class (UVC) mode, allowing MAKI Live to function as a plug-and-play webcam for computers and streaming applications. This mode is ideal for direct connections to software like Zoom, Teams, OBS, or other video conferencing and production tools.

PoE Adapter Mode

The USB-C port on MAKI Live can be used with an optional PoE (Power over Ethernet) adapter, providing a wired Ethernet connection for stable network performance while also delivering continuous power, eliminating the need for battery charging. This makes it an ideal solution for permanent installations where a wired network and reliable power source are preferred.

Note: The PoE adapter is an optional accessory and must be connected to a PoE-capable network or power injector to function properly.

Device Information



The Device Information panel provides key details about your MAKI Live camera, including its network settings, battery level, and firmware version. This section helps users monitor device status and perform essential maintenance tasks.

Device Details

Name

The unique identifier for your MAKI Live camera, which can be edited to a custom name for easy identification.

Serial Number (SN)

The device's unique serial number, useful for warranty support and device registration.

IP Address

Displays the current network IP address assigned to the camera, which is essential for remote access and network configuration.

Battery

Indicates the current battery level as a percentage, helping users manage power usage.

Firmware & App Version

Firmware Version

Displays the currently installed firmware version, which controls the camera's core functionality.

App Version

Shows the installed version of the MAKI Live control app, ensuring compatibility with the camera's features.

Maintenance Options

This panel serves as a central hub for device status monitoring, troubleshooting, and software updates, keeping your MAKI Live camera running smoothly.

Restore Factory Settings

Resets all settings to their original factory defaults. This is useful for troubleshooting or preparing the device for a new setup.

Check for Updates

Allows users to check for the latest firmware updates. A red dot indicates that an update is available. Updating ensures the best performance, security, and new features.

This panel serves as a central hub for device status monitoring, troubleshooting, and software updates, keeping your MAKI Live camera running smoothly.



BirdDog

BirdDog.tv