



Manuals.plus /

- › AKK /
- › AKK X2-Ultimate 5.8GHz FPV Transmitter User Manual

## AKK X2-ultimate US Version

# AKK X2-Ultimate 5.8GHz FPV Transmitter Instruction Manual

Model: X2-ultimate US Version

## 1. INTRODUCTION

---

The AKK X2-Ultimate is a versatile 5.8GHz FPV (First Person View) video transmitter designed for use with drones and other remote-controlled vehicles. It features switchable power output levels, OSD (On-Screen Display) configuration compatibility with Betaflight flight control boards, and an integrated microphone. This manual provides essential information for the proper setup, operation, and maintenance of your X2-Ultimate FPV transmitter.

## 2. SAFETY INFORMATION

---

### **Important Regulatory Notice:**

Channels 5645, 5925, and 5945 (E4, E7, E8) are not available due to FCC regulation. Attempting to select these channels will result in an invalid action. This product requires an amateur radio license to operate legally in the US. Operators must abide by all applicable laws and hold an amateur license to operate this equipment. Use of amateur equipment without a license could subject the operator to significant fines by the FCC. Always ensure proper ventilation when operating the transmitter to prevent overheating. Do not operate the transmitter without an antenna connected, as this can cause permanent damage to the unit.

## 3. WHAT'S IN THE BOX

---

- 1x AKK X2-Ultimate 5.8G VTX
- 1x Connection Cable (JST, 6pin)
- 1x MMCX Antenna
- 1x Product Manual



Figure 3.1: Package contents of the AKK X2-Ultimate FPV Transmitter.

## 4. SPECIFICATIONS

---

Feature	Description
Input Voltage	7V-26V (2-6S Lipo)
Camera Power Supply	5V @ under 500mA max.
Output Power	0.01mW/25mW/200mW/600mW/1000mW switchable
Port Connector	JST, 6pin
Antenna Connector	MMCX to SMA
Dimensions	32mm x 22mm
Weight	6.8g (without antenna)
Channels	40 (Band: A, B, E, FS-IRC, Raceband)
Special Features	One button setup, Integrated Microphone, UART, LC Filtered power, Betaflight 3.2/3.3 OSD FC compatibility



## 5. SETUP

---

### 5.1 Physical Overview

The AKK X2-Ultimate is a compact FPV transmitter. Key components include the MMCX antenna connector, LED display, and a single button for configuration. It also features an integrated microphone for audio transmission.



Figure 5.1: AKK X2-Ultimate FPV Transmitter pinout diagram.

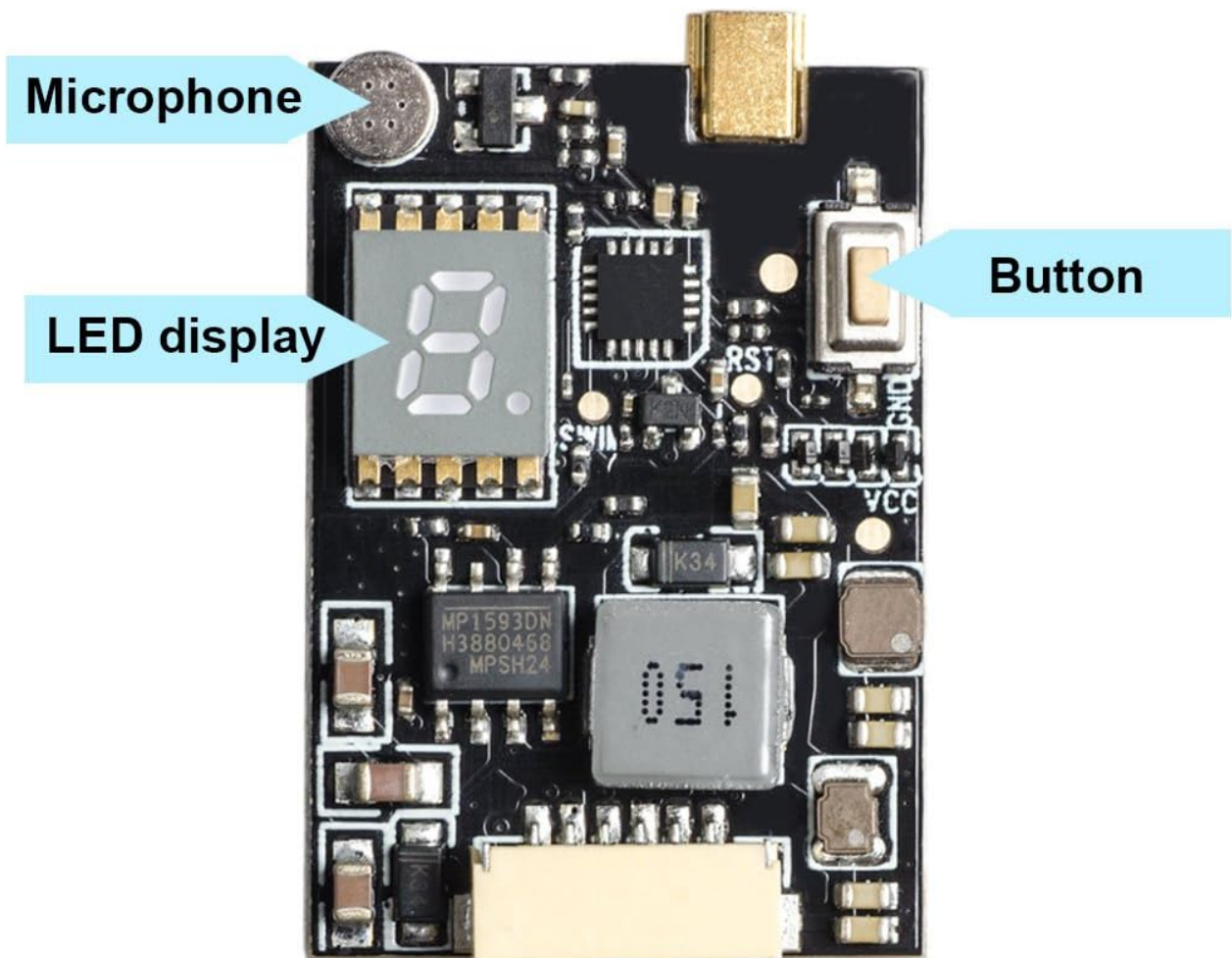


Figure 5.2: AKK X2-Ultimate FPV Transmitter back view with key features labeled.

## 5.2 Wiring Diagram

Connect the provided 6-pin cable to the VTX. The pinout is clearly labeled on the board:

- **Smart Audio:** For OSD configuration via Betaflight.
- **5V Cam:** 5V output for your FPV camera (max 500mA).
- **GND:** Ground connection.
- **Video:** Video input from your FPV camera.
- **GND:** Ground connection.
- **7-26V:** Power input (2-6S Lipo).

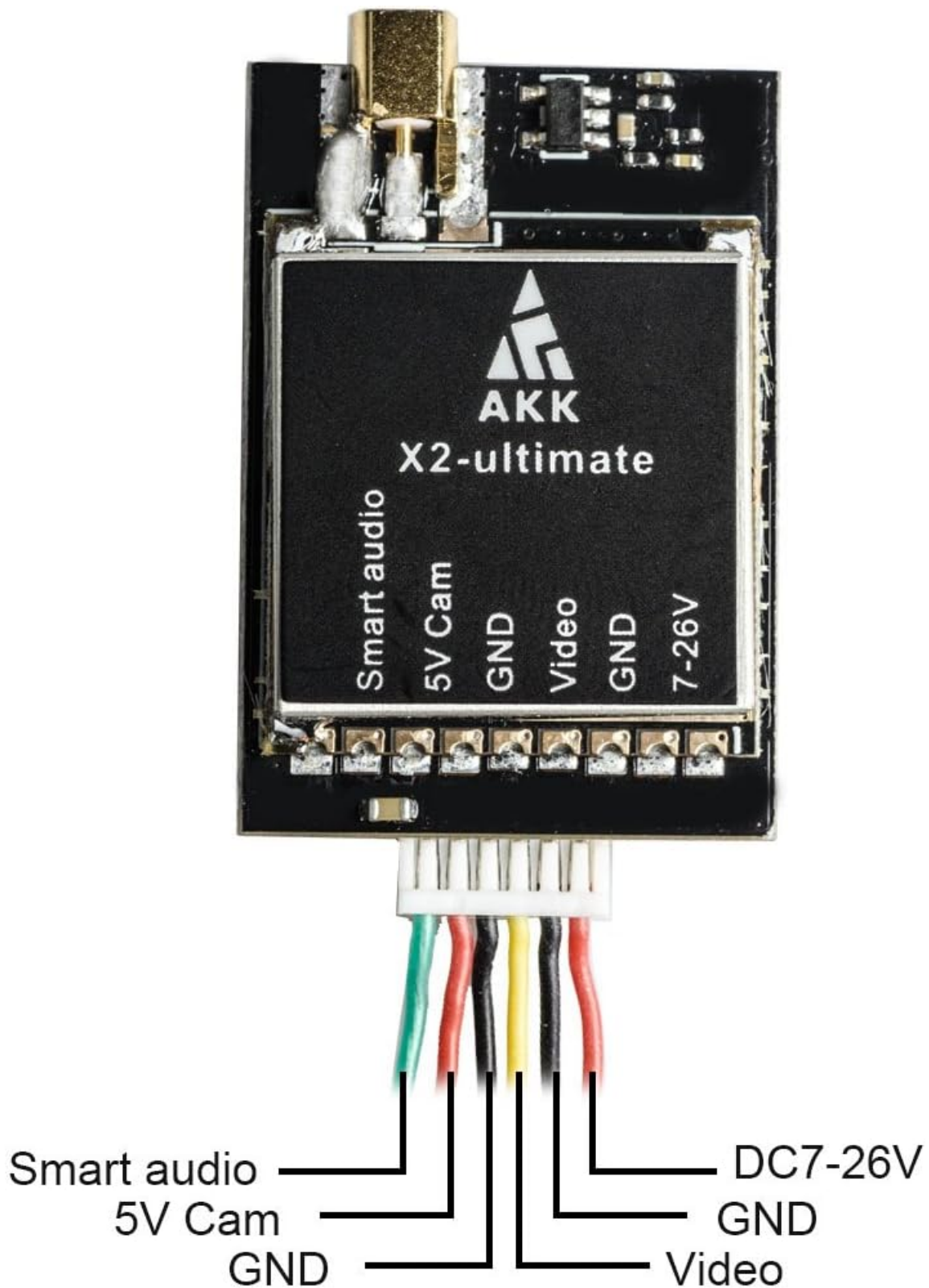


Figure 5.3: Wiring connections for the AKK X2-Ultimate.

### 5.3 Antenna Connection

The AKK X2-Ultimate uses an MMCX antenna connector. Carefully align the MMCX connector on your antenna with the port on the VTX and push firmly until it clicks into place. Ensure a secure connection to prevent signal loss and damage.

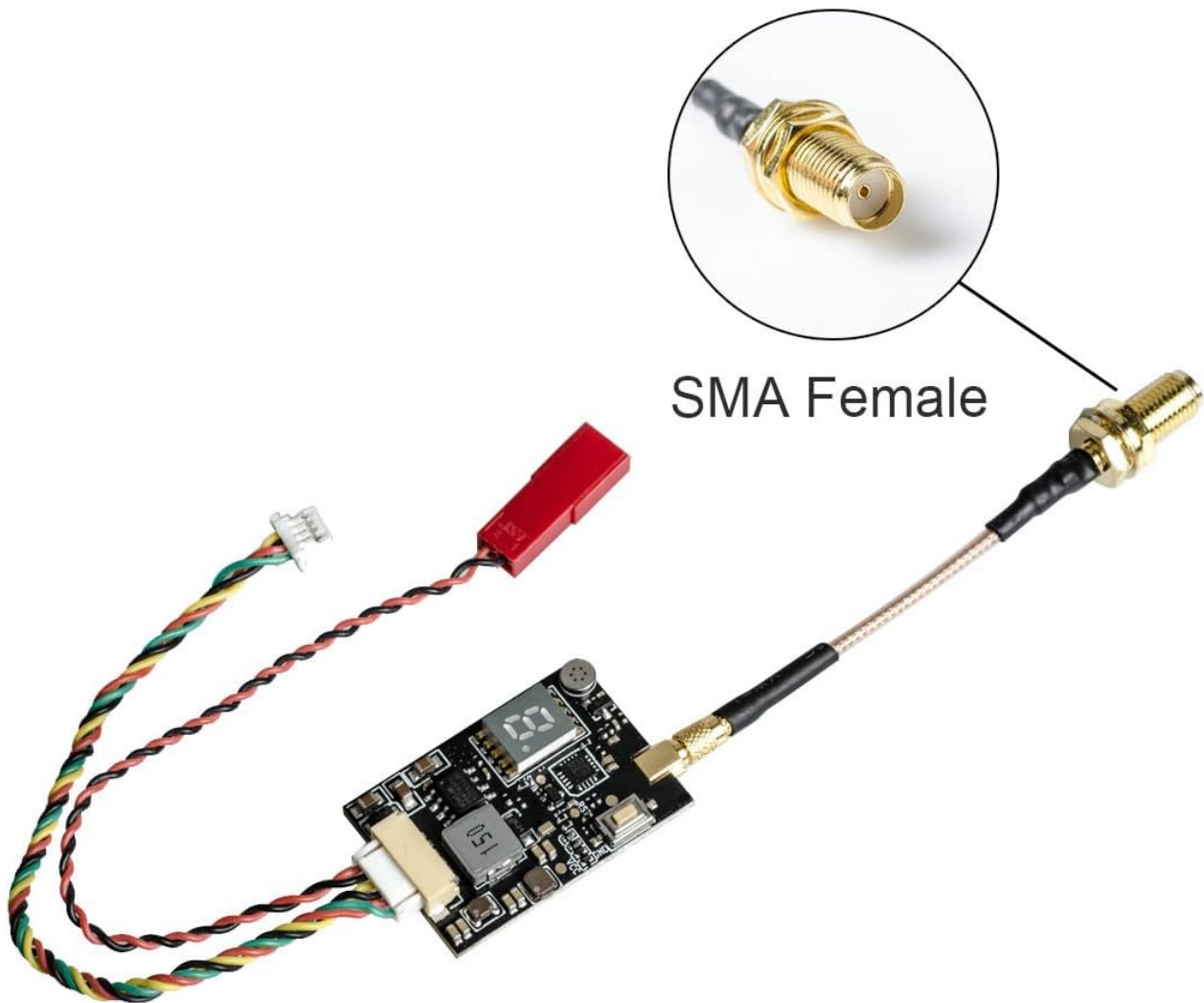


Figure 5.4: MMCX antenna connection point.

## 6. OPERATING INSTRUCTIONS

---

### 6.1 Power On/Off

Connect the VTX to a compatible power source (7V-26V). The LED display will illuminate, indicating the current channel and band. Disconnect power to turn off the unit.

### 6.2 Channel, Band, and Power Setup

The X2-Ultimate features a single button for easy adjustment of channel, band, and power output. The LED display shows the current settings.

- **Short Press:** A short press of the button cycles through channels (1-8) within the current band.
- **Long Press (3 seconds):** A long press of the button cycles through the available bands (A, B, E, F, R).
- **Very Long Press (5 seconds):** A very long press of the button cycles through the power output levels (0.01mW, 25mW, 200mW, 600mW, 1000mW).

Remember to avoid selecting FCC-restricted channels (5645, 5925, 5945).

### 6.3 Betaflight OSD Configuration

The AKK X2-Ultimate supports OSD configuration via Betaflight Flight Control Board. This allows for convenient adjustment of VTX settings directly through your FPV goggles or monitor.

1. Connect your flight controller to Betaflight Configurator on your computer.
2. Navigate to the 'Ports' tab.
3. Enable 'TBS SmartAudio' or 'IRC Tramp' (depending on your flight controller's firmware and VTX protocol support) on a free UART port under the 'Peripherals' column.
4. Save and Reboot.
5. Go to the 'Configuration' tab and ensure 'OSD' is enabled under 'Other Features'.
6. Save and Reboot.
7. Access the OSD menu in your FPV goggles/monitor (typically by centering yaw and throttle, then pushing pitch up).
8. Navigate to the VTX settings menu to adjust band, channel, and power.

## 6.4 SmartAudio Configuration

SmartAudio allows for remote control of your VTX settings. This is typically done through your flight controller's OSD menu or a compatible radio transmitter.

Your browser does not support the video tag.

Video 6.1: AKK X2-Ultimate FPV Transmitter overview, including physical features, dimensions, input/output, and a demonstration of Betaflight and SmartAudio configuration. This video provides a visual guide to setting up and controlling your VTX.

## 7. MAINTENANCE

---

To ensure the longevity and optimal performance of your AKK X2-Ultimate FPV Transmitter, follow these maintenance guidelines:

- **Cleaning:** Keep the VTX free from dust, dirt, and moisture. Use a soft, dry cloth for cleaning. Avoid using harsh chemicals or solvents.
- **Connections:** Regularly inspect all wiring and antenna connections for signs of wear, corrosion, or looseness. Secure any loose connections.
- **Storage:** Store the VTX in a dry, cool environment away from direct sunlight and extreme temperatures.
- **Antenna:** Always ensure an antenna is connected before powering on the VTX to prevent damage.

## 8. TROUBLESHOOTING

---

- **No Video Signal:**
  - Check all wiring connections, especially video input and ground.
  - Ensure the antenna is securely connected.
  - Verify that the VTX is powered on and the LED display is active.
  - Confirm that your FPV goggles/receiver are on the correct band and channel.
  - If using Betaflight OSD, ensure the correct UART is enabled for SmartAudio/IRC Tramp.
- **Poor Video Quality/Interference:**

- Check for loose antenna connections or damaged antennas.
  - Ensure the VTX is not overheating.
  - Try a different channel or band to avoid interference from other FPV systems or Wi-Fi.
  - Verify that the LC filter is functioning correctly (if applicable).
  - Ensure power input is stable and within the specified range (7V-26V).
- **VTX Not Responding to Button Presses:**
    - Ensure the VTX is powered on.
    - Check for physical damage to the button.
    - If using SmartAudio, try configuring via Betaflight OSD.

## 9. WARRANTY AND SUPPORT

---

For warranty claims, technical support, or further assistance, please contact AKK Technology Inc. directly through their official website or the platform where the product was purchased. Please retain your proof of purchase for warranty validation.