1.2GHz 2W VTX Transmitter (Model: KP-T1220B) Specification

1. Product Overview

The KP-T1220B is a high-performance analog video transmitter (VTX) operating in the 1.2GHz frequency band, specifically engineered for long-range, stable video transmission in FPV drones, remote monitoring, aerial photography, and industrial inspection applications. With two adjustable output power levels (25mW for short-range, low-interference use and 2000mW = 2W for long-distance transmission), this transmitter offers exceptional flexibility to adapt to diverse mission requirements. It features a wide input voltage range of 7-36VDC, compatible with 2-8S LiPo batteries, making it suitable for various UAV platforms and power supply scenarios. Crafted with a lightweight aluminum housing, the KP-T1220B boasts an ultra-compact design (40x37x13mm) and weighs only 16g, ensuring easy installation without adding excessive weight to the device, while the aluminum construction provides efficient heat dissipation to maintain stable performance even at maximum 2W power output.

2. General Specifications

Parameter	Specification
Model Number	KP-T1220B
Transmitter Type	Analog Video Transmitter (VTX)
Operating Frequency	1.2GHz
Frequency Range	1080MHz - 1360MHz
Number of Channels	8CH (8 Selectable Channels)
Input Voltage	7-36VDC, compatible with 2-8S LiPo Batteries
Output Power	Adjustable: 25mW (Low Power) / 2000mW (2W, High Power)
Antenna Connector	SMA Female Connector (50Ω Impedance), compatible with SMA Male Antennas
Housing Material	Aluminum Alloy (CNC Machined, for efficient heat dissipation and durability)
Dimensions (L×W×H)	40mm × 37mm × 13mm (Excluding Antenna, Connectors and Cables)
Net Weight	16g (Without Antenna)

3. Channel & Frequency Table (1.2GHz Band)

Channel Number	Transmit Frequency (MHz)
CH1	1080
CH2	1120
CH3	1160
CH4	1200
CH5	1240
CH6	1280
CH7	1320
CH8	1360

4. Electrical Parameters

4.1 Power Specifications

- Input Voltage Range: 7VDC - 36VDC (Wide voltage compatibility, supporting 2S to 8S LiPo batteries, suitable for both small and large UAV platforms).
- Input Current: 600mA (Typical) @ 12VDC, 2W Output; 40mA (Typical) @ 12VDC, 25mW Output.
- Output Power: 2 Adjustable Levels
  - Low Power (25mW): Ideal for short-range FPV flying, freestyle drones, or environments with strict interference control, ensuring compliance with low-power regulations in some regions.
  - High Power (2000mW / 2W): Designed for long-distance transmission, providing excellent signal penetration and extended range for outdoor exploration, industrial inspection, and long-range FPV missions.
- Frequency Stability: ±10ppm (At 25℃, Ambient Temperature), ensuring stable signal transmission without frequency drift.

4.2 Frequency & Channel Specifications

- Frequency Range: 1080MHz - 1360MHz (Continuous adjustable within the

range, supporting flexible channel selection to avoid signal interference).

- Channel Quantity: 8 Selectable Channels, Channel Spacing: 40MHz (Typical), ensuring clear signal separation between channels.
- Modulation Mode: FM (Frequency Modulation), Analog Video Transmission, supporting both PAL and NTSC video formats for wide compatibility with various cameras.
- RF Impedance: 50Ω, matching standard SMA antennas for optimal signal transmission efficiency.

4.3 Video & Audio Parameters

- Video Input: CVBS (Composite Video Broadcast Signal), 1Vpp (75Ω Load), compatible with most analog FPV cameras.
- Transmission Distance (Open Area, Without Obstacles; Subject to Antenna Performance):
  - 25mW: Up to 300m (Suitable for short-range, visual-line-of-sight flying).
  - 2W: Up to 2.5km (Ideal for long-range missions, with potential extension to further distances with high-gain antennas).
- Signal-to-Noise Ratio (SNR): > 70dBc (Typical), ensuring clear, low-noise video transmission even in complex environments.

5. Physical & Environmental Specifications

5.1 Physical Dimensions & Weight

- Dimensions (L×W×H): 40mm × 37mm × 13mm (Excluding Antenna, Connectors and Cables), ultra-compact design for easy integration into small FPV drones and portable devices.
- Net Weight: 16g (Without Antenna); lightweight design to minimize payload impact on UAV performance.
- Mounting: Compatible with 30.5×30.5mm (M3) standard mounting holes, facilitating quick and secure installation on most FPV drone frames.

5.2 Housing & Heat Dissipation

Housing Material: High-strength Aluminum Alloy (CNC Machined), featuring a rugged and compact design that provides excellent heat dissipation, corrosion resistance, and mechanical protection. The integrated heat sink structure efficiently dissipates heat generated during 2W high-power operation, preventing overheating and extending the product service life. For confined installation environments, additional airflow or cooling fans are recommended to further enhance heat dissipation

performance.

5.3 Operating Environment

- Operating Temperature: -10℃ ~ +60℃
- Storage Temperature: -20℃ ~ +80℃
- Relative Humidity: 10% ~ 90% (Non-Condensing)
- Operating Altitude: Up to 2500m
- Electromagnetic Compatibility (EMC): Complies with CE/FCC/SRRC Standards (Optional, Based on Customization), ensuring compliance with regional radio frequency regulations.

6. Interface Description

- Power Interface: 2-Pin JST Connector (Input Voltage: 7-36VDC, Center Positive), compatible with standard drone power cables.
- Video Input Interface: 2-Pin JST Connector (CVBS Signal Input, 75Ω), easy to connect with FPV cameras.
- Audio Input Interface: 2-Pin JST Connector (Optional, for Audio Transmission), supporting external microphones or audio sources.
- Antenna Interface: SMA Female Connector (50Ω Impedance), compatible with all standard SMA Male antennas (e.g., dipole, patch, or high-gain antennas) for flexible signal optimization.
- Power/Channel Selection: Integrated DIP Switch or Single Function Button (On the Top/Front Panel) for easy adjustment of output power levels and channels. Short presses switch channels (1-8 cycle), while long presses toggle between power levels (25mW/2W).
- Indicator Lights: Dual LED Indicators (Power and Power Level/Channel), providing clear visual feedback on the transmitter’s operating status (e.g., blue for 25mW, red for 2W).

7. Key Features

- Dual Adjustable Power Levels: 25mW for short-range, low-interference use and 2W for long-distance transmission, adapting to diverse mission requirements and regional regulations.
- Wide Voltage Compatibility: 7-36VDC input, supporting 2-8S LiPo batteries, making it suitable for a wide range of UAV platforms from small FPV drones to large industrial UAVs.
- 8 Selectable Channels: 1080MHz-1360MHz frequency range with 40MHz

channel spacing, easy to avoid signal interference and compatible with most 1.2GHz receivers.

- Ultra-Compact & Lightweight: 40x37x13mm dimensions and 16g weight, ensuring easy installation without adding excessive payload to drones, ideal for small FPV and portable devices.
- Durable Aluminum Housing: CNC-machined aluminum alloy provides excellent heat dissipation, anti-impact performance, and corrosion resistance, suitable for outdoor and harsh industrial environments.
- Stable Performance: High frequency stability (±10ppm), low noise, and reliable analog video transmission, ensuring clear and consistent video signals even in complex environments.
- Easy Operation: Simple power/channel adjustment via DIP switch or function button, with LED indicators for clear status feedback, suitable for both beginners and professional users.

8. Applications

- FPV Drones & Mini UAVs (Freestyle, Racing, Long-Range Exploration)
- Remote Video Monitoring Systems (Residential, Industrial, Agricultural, and Outdoor Areas)
- Aerial Photography & Surveying (Agricultural mapping, Land Surveying)
- Industrial Inspection (Power Lines, Bridges, Pipelines, and Infrastructure)
- Outdoor Adventure & Sports Video Transmission (Surfing, Mountaineering, Off-Road Racing)
- Security Surveillance (Remote Locations, Perimeter Monitoring)
- Search and Rescue (SAR) Operations, providing real-time video feedback for remote areas.

9. Important Notes

- Always connect a compatible SMA antenna to the transmitter before powering it on. Operating without an antenna may cause permanent damage to the RF module and void the warranty.
- Use a stable power supply within the 7-36VDC range. Unstable voltage may cause signal distortion, power failure, or damage to the device. For optimal performance, use a high-quality power cable and battery.
- When operating at 2W high power, ensure sufficient airflow and ventilation to facilitate heat dissipation. Avoid installing the transmitter near high-temperature components or in enclosed spaces without proper cooling.
- The actual transmission distance may vary based on environmental factors

(obstacles, electromagnetic interference), antenna gain, and weather conditions. High-gain antennas can extend the transmission range significantly.

- Please comply with local radio frequency (RF) regulations and licensing requirements when using the transmitter. Different regions have specific restrictions on maximum output power (e.g., CE standard limits for 1.2GHz band may be lower than 2W).
- Do not disassemble or modify the transmitter without professional guidance, as this may void the warranty and cause safety hazards.
- Avoid exposing the transmitter to direct sunlight for extended periods or harsh weather conditions (heavy rain, snow) to prevent damage to the housing and internal components.

10. Package List

- 1 × KP-T1220B 1.2GHz 2W VTX Transmitter
- 1 × DC Power Cable (JST Connector)
- 1 × Video Input Cable (JST Connector)
- 1 × SMA Male Antenna (2dBi, Optional, Based on Customization)