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## HAPPYMODEL ES900TX

# HAPPYMODEL ExpressLRS ES900TX 915MHz Long Range Module User Manual

Model: ES900TX | Brand: HAPPYMODEL

## 1. INTRODUCTION

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This manual provides essential instructions for the installation, operation, and maintenance of your HAPPYMODEL ExpressLRS ES900TX 915MHz Long Range Module. The ES900TX is a high-performance transmitter module designed for use with compatible remote control transmitters, enabling long-range control for FPV drones and other RC models. Please read this manual thoroughly before using the module to ensure safe and optimal performance.

## 2. PRODUCT OVERVIEW

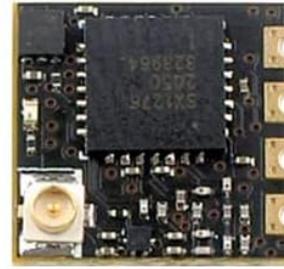
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The HAPPYMODEL ExpressLRS ES900TX is a compact and efficient 915MHz long-range transmitter module. It features an ESP32 microcontroller and SX1276 RF chip, providing robust and reliable communication. The module supports Wi-Fi for convenient firmware updates and is designed for easy integration into various OpenTX/EdgeTX compatible radio transmitters.

Old version ES915RX



New version ES900 RX



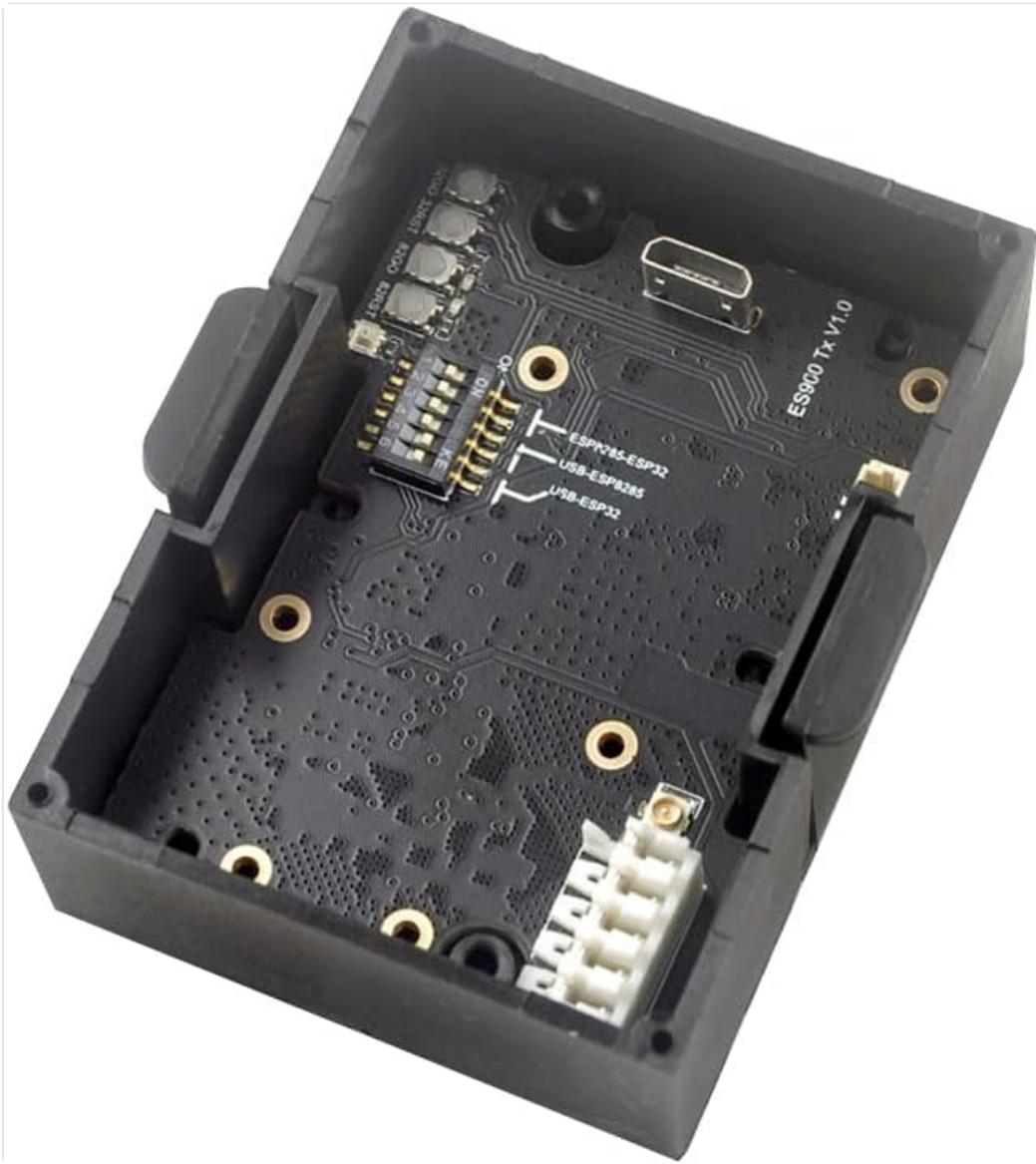
Antenna plug IPEX4  
2.00mm Solder pad  
16mm\*10mm\*3mm  
0.7gram

Antenna plug IPEX1  
2.54mm Solder pad  
Flash firmware by wifi  
12mm\*12mm\*3mm  
0.6gram

Figure 2.1: The ES900TX module, showcasing its compact design and integrated cooling fan for thermal management during operation.



Figure 2.2: Internal view of the ES900TX Printed Circuit Board (PCB), highlighting the ESP32 and SX1276 chips, along with the fan connector and other components.



**Figure 2.3:** The ES900TX module securely housed within its protective casing, ready for installation into a compatible radio transmitter.



**Figure 2.4:** The ES900TX module inside its case, showing the heatsink assembly which aids in dissipating heat generated during high-power operation.

### 3. SETUP AND INSTALLATION

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Follow these steps to properly install and configure your ES900TX module:

1. **Radio Compatibility:** Ensure your radio transmitter (e.g., Radiomaster TX16S, Jumper T12, T16, T18) has an external module bay compatible with JR/Lite modules.
2. **Module Installation:** Carefully insert the ES900TX module into the external module bay of your radio transmitter. Ensure it is seated firmly.
3. **Antenna Connection:** Connect the provided 915MHz antenna to the antenna connector on the ES900TX module. Ensure the connection is secure but do not overtighten.
4. **Radio Configuration:**
  - Power on your radio transmitter.
  - Navigate to the Model Setup menu.
  - Disable the Internal RF module.
  - Enable the External RF module and set its mode to "CRSF" (Crossfire).
  - Adjust the power output settings as required for your application and local regulations.
5. **Firmware Update (Optional but Recommended):**

- The ES900TX supports Wi-Fi firmware flashing. Connect your computer or mobile device to the module's Wi-Fi hotspot (usually named "ExpressLRS\_TX").
- Open a web browser and navigate to 10.0.0.1.
- Upload the latest ExpressLRS firmware for the ES900TX 915MHz module. Refer to the official ExpressLRS documentation for detailed flashing instructions and firmware files.

#### 6. Binding:

- Ensure your ExpressLRS receiver (RX) is powered on and in binding mode.
- On your radio, navigate to the ExpressLRS Lua script or the External RF settings.
- Initiate the binding process. The module and receiver should bind automatically if both are running compatible firmware versions and are in binding mode.
- A solid LED on the receiver typically indicates a successful bind.

## 4. OPERATING INSTRUCTIONS

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Once the ES900TX module is installed and bound to your receiver, you can begin operating your RC model:

- **Pre-Flight Checks:** Always perform a range check and verify all control surfaces and functions are working correctly before each flight.
- **Power Output:** Adjust the power output (TX Power) in your radio's ExpressLRS settings according to your flying environment and legal limits. Higher power provides greater range but consumes more battery and generates more heat.
- **Antenna Orientation:** Ensure your transmitter antenna is oriented correctly for optimal signal transmission. For most applications, a vertical orientation is recommended.
- **Failsafe Configuration:** Configure failsafe settings on your receiver to ensure a safe response (e.g., throttle cut, land) in case of signal loss.
- **Telemetry:** The ExpressLRS system provides telemetry data back to your radio. Monitor RSSI (Received Signal Strength Indicator) and other relevant data during flight to assess link quality.

## 5. MAINTENANCE

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Regular maintenance helps ensure the longevity and reliable performance of your ES900TX module:

- **Physical Inspection:** Periodically inspect the module, antenna, and connectors for any signs of damage, wear, or loose connections.
- **Cleaning:** Keep the module free from dust and debris. Use a soft, dry cloth for cleaning. Avoid using liquids or solvents.
- **Firmware Updates:** Regularly check the official ExpressLRS project website for new firmware releases. Updating to the latest stable firmware can provide performance improvements, new features, and bug fixes.
- **Storage:** When not in use, store the module in a dry, cool place, away from direct sunlight and extreme temperatures.

## 6. TROUBLESHOOTING

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If you encounter issues with your ES900TX module, consider the following troubleshooting steps:

- **No Power/Module Not Detected:**

- Ensure the module is fully seated in the radio's module bay.
- Verify the radio's external RF is enabled and set to CRSF.
- Check the radio's internal module is disabled.

- **Binding Issues:**

- Confirm both TX and RX are running the exact same ExpressLRS firmware version.
- Ensure the binding phrase (if used) matches on both TX and RX.
- Verify the receiver is in binding mode (often indicated by a slow flashing LED).
- Try power cycling both the radio and the receiver.

- **Poor Range/Signal Loss:**

- Check that the antenna is securely connected to the module and is undamaged.
- Ensure the antenna on both TX and RX are correctly oriented.
- Increase the TX power output in your radio's ExpressLRS settings (within legal limits).
- Inspect the receiver antenna placement on your model for obstructions or interference.
- Avoid flying in areas with high RF interference.

- **Module Overheating:**

- Ensure the cooling fan (if present and connected) is operating correctly.
- Reduce the TX power output if not required for your flying distance.
- Ensure adequate airflow around the module.

For more detailed troubleshooting and community support, refer to the official ExpressLRS documentation and forums.

## 7. SPECIFICATIONS

Feature	Detail
Brand	HAPPYMODEL
Model	ES900TX
Frequency	915MHz
Wireless Communication	Wi-Fi (for firmware updates)
Control Type	Remote Control
Product Dimensions	2.17"L x 1.54"W x 0.43"H (55mm x 39mm x 11mm)
Compatibility	Radiomaster TX16S, Jumper T12, T16, T18, and other OpenTX/EdgeTX compatible radios with JR/Lite module bay.
UPC	757842238817

## 8. WARRANTY AND SUPPORT

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HAPPYMODEL products are typically covered by a limited manufacturer's warranty against defects in materials and workmanship. Please retain your proof of purchase for warranty claims. For specific warranty terms, technical support, or service inquiries, please contact HAPPYMODEL customer support or refer to their official website. Additionally, the ExpressLRS community offers extensive resources and support for firmware-related questions and general usage.

For the latest information and support, visit:

- [HAPPYMODEL Official Website](#) (Hypothetical link, replace if actual link is known)
- [ExpressLRS Official Website](#)