

USER MANUAL (Wireless Remote Controller)

1. PRODUCT OVERVIEW

The Wireless Remote Controller serves as the centralized control terminal (Master Device) of the Wireless Quiz Answer System. It is engineered to perform centralized scheduling, command transmission, and data reception for up to 32 wireless multi-color buzzers. Integrating a high-performance microcontroller unit (MCU) and an advanced RF transceiver chip, the remote controller features dedicated function buttons and a status indicator to assist hosts in managing quiz procedures with precision.

2. TECHNICAL SPECIFICATIONS & HARDWARE PREPARATION

- Operating Voltage: 3.0V DC (Powered by 2 × AAA batteries; batteries not included).
- RF Frequency Band: 2.4 GHz ISM Band (Maintains frequency synchronization with the buzzer terminals).
- Control Capacity: Utilizing dedicated address-matching logic, a single remote controller can simultaneously link with and control up to 32 wireless buzzers.

3. DETAILED FUNCTIONALITY & OPERATIONAL GUIDE

- Power Control: Press and hold the "ON/OFF" button for 2 seconds to boot the remote controller.
- LED Feedback: The status LED indicator will remain solid, indicating that the master control wireless module has entered the listening standby state. Press and hold the button again to power off.
- Quiz Hosting Control Mechanism (Host Control):
 - One-Key Start: The host presses the "Start" button, prompting the remote to transmit wireless broadcast data packets into the environment. At this moment, the remote's LED indicator will flash at a high frequency, representing active command data transmission.
 - Signal Lock-on: When the RF signal from any buzzer terminal reaches the remote controller first and is decoded successfully, the remote controller immediately terminates the countdown and broadcasts a frequency-lock command across the network (thereby shielding the other 31 devices). Concurrently, the remote's LED indicator will alter its flashing pattern (or switch its color display), visually notifying the host that a participant has successfully broken in.
- Multi-Mode Selection:

- Normal Mode (Standard Buzz-in): Activates the standard RF velocity-based competition mechanism.
- Random Mode (Random Selection): Triggers a wireless random polling algorithm to randomly designate one buzzer out of the connected pool.
- Mute Function: Transmits a wireless packet instructing all terminals to enable or disable their built-in buzzers. During mode switches, the remote's LED indicator displays distinct flashing combinations to provide visual state feedback.

4. SYSTEM EXPANSION & WIRELESS PAIRING MANAGEMENT

When replacing or adding buzzer terminals (up to the 32-unit limit), the wireless configuration process must be initiated by the remote controller:

1. Press a specific combination of function keys or long-press the designated button to force the remote controller into the "Address Pairing Broadcast Mode."
2. LED Feedback: The remote's status LED indicator will enter an ultra-rapid, continuous flashing sequence, indicating that the RF module is broadcasting pairing guide signals at full duty cycle.
3. Once all buzzer terminals have completed synchronization, press any key to exit the pairing menu. The remote's LED indicator will return to a steady, solid standby state.

5. TROUBLESHOOTING & WIRELESS SAFETY

- No Transmit Feedback on Button Press: If the remote's status LED indicator fails to light up or show any flashing feedback when function buttons are pressed, inspect the batteries for correct polarity alignment or check if they are fully depleted.
- Signal Latency or Packet Loss: As the wireless hub, the remote controller should not have its upper enclosure (where the internal antenna radiation zone resides) shielded by hands during operation. Ensure the environment is clear of large metallic obstructions and kept away from high-power 2.4 GHz interference sources such as Wi-Fi routers.

FCC Caution.

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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.