

User Manual – ZTS-WL100 Wireless Control Box

Wireless Control Box for LED Signs / RRFB / Chevron Sequential Flashing System

Model: ZTS-WL100

FCC ID: 2BTFQ-WL100

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1. Product Overview

The ZTS-WL100 Wireless Control Box is designed for LED warning signs, RRFB systems, and sequential Chevron signs. It integrates a wireless communication module, control board, LiFePO₄ battery pack, charging management circuitry, and external antenna interface.



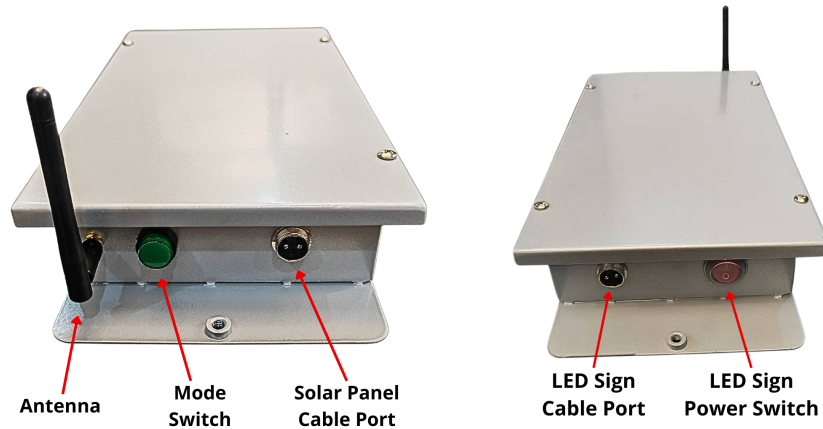
2. Technical Specifications

Item	Specification
Model	ZTS-WL100
Operating Voltage	6.4V / 9.6V LiFePO ₄ system
Wireless Frequency	2.4 GHz (FCC Part 15)
Antenna	External SMA antenna (2-5 dBi, approved only)
Operating Temperature	-40°C to +75°C
Waterproof Rating	Enclosure IP65
Supported Signs	LED Warning Sign, RRFB, Chevron Sequential Signs
Modulation Type	GFSK

3. Product Layout

Front Panel: antenna port, power switch, DC charging port.

Internal Components: wireless control PCB, battery pack, antenna cable.



4. Installation Instructions

Step 1: Mount the control box securely on the sign post or back of the LED sign.

Step 2: Connect the LED sign output cable to the controller's terminal.

Step 3: Install and tighten the SMA antenna. Keep upright for best wireless performance.

Step 4: Ensure the LiFePO₄ battery is connected properly.

Step 5: Turn on the power switch to begin operation.

5. Operating Modes

- 1) Simultaneous Flashing Mode: all LED signs flash together.
- 2) Sequential Chevron Mode: three chevrons complete one full cycle in approximately 1 second.
- 3) RRFB Push-Button Mode: RRFB units flash synchronously after button activation.
- 4) Wireless Synchronization Mode: multiple control boxes communicate and flash in sync.

6. Battery and Charging

Use only approved LiFePO₄ battery packs. Charging is supported via solar panel or DC port. Do not charge the battery below 0°C (32°F).

7. Safety Information

- Do not replace the antenna with a non-approved or higher-gain antenna.
- Do not modify the RF module or control board.
- Avoid short-circuiting the battery terminals.
- Installation should be performed by qualified personnel.

8. Regulatory Compliance Information

FCC Statement

1. 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.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. 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. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

9. Troubleshooting

Issue	Cause	Solution
Sign not flashing	Low battery	Recharge or replace battery
No wireless sync	Antenna not installed	Install or tighten antenna
Weak signal	Metal obstruction	Move antenna outward
Incorrect flashing sequence	Wrong configuration	Reconfigure controller settings

10. Contact Information

Manufacturer: Sugar Sound LLC (DBA Zoodico Traffic Solutions)

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