

# CZERF

## CZE-05B

FM transmitter

**Please read this manual before you use the device, restore the manual carefully in case you'll need it in the future.**

## **Thanks for buying the CZE-05B portable FM transmitter.**

Before you use this transmitter for the first time, please read the user manual carefully and operate the device following the instructions. It is a multi-functional device but easy to operate. We sincerely hope our products will bring you a happy experience.

### **1. Attention before use**

- 1) Only professional engineers can do the repair work.
- 2) Don't power on the transmitter without connecting the antenna.
- 3) Don't use the transmitter in an explosive environment (such as gas station, natural gas or steam)
- 4) Don't put the transmitter in extreme dusty, damp or hot places.
- 5) Please use the transmitter following the local regulations.
- 6) Please try not to use the transmitter in thunder/storm weather.

### **2. Main Characteristics:**

- 1) High-fidelity high stability: Motherboard is adopted by next-generation integrated NC FM stereo radio transmitter chip the BH1415 from Japan ROHM Company, built-in PLL frequency PLL, audio pre-emphasis, limiter and low pass filter circuit to achieve high fidelity, high stability signal transmission
- 2) Stereo clear sound: the control panel is consisted of AT89C2051 and AT24C02; after the stage by two 2SC3355 and one 2SC2053 total of three power amplifier to ensure that the three-dimensional sound quality output effect
- 3) Good shielding: Structure design closely, not because of external signal induction frequency drift
- 4) Excellent heat dissipation: The stability of the chassis using high quality aluminum alloy material, lightweight and excellent heat dissipation can work continuously to ensure that equipment

- 5) Easy to use: Panel use LCD to display the transmission frequency, according to the identification of the interface to connect to other hardware, easy to adjust and it is intuitive
- 6) Switching power: 100mW and 500mW power can be switched to use
- 7) Switching frequency: Can arbitrarily set from 76M to 108M range from 86M to 90M 95M to 108M, 87M to 108M
- 8) This subsection is with a microphone and volume control

### 3.Circuit Principle:

Stereo audio via 3.5 mm interface input, after the adjustment of the potentiometer control input to BH1415 internal, internal after pre-emphasis circuit, limiting circuit and low-pass filter circuit and by 13, 14 feet again after access to the 7.6 MHz crystal vibration frequency oscillation circuit through 200 points after the 38 KHZ subcarrier signal, and 38 KHZ subcarrier by 2 points in the frequency of 19 KHZ pilot signal modulation. Firstly, the audio signal and the 38KHz subcarrier signal are balanced modulated by a multiplexer to produce a main signal (L+R) and a 38KHz subcarrier signal (L-R) modulated by DSB, and then the composite signal with the 19KHz pilot signal is output from the 5th leg. The microphone audio is also input by another 3.5mm interface, and after audio amplification, it is combined with the composite signal output from the 5th pin. The two channels are directly modulated by a high-frequency oscillator composed of a variogram diode. Frequency control by touch the key and the MCU control the internal PLL circuit to stabilize the transmission frequency. After two stages of power amplification, the transmitting frequency generates 800MW power output, which is then filtered out by a low-pass filter composed of LC and transmitted to the antenna for transmission. The MCU then transmits the current transmission frequency information to the user in real time through the LCD display module.

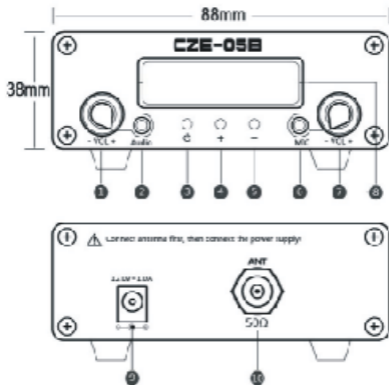
### 4. Main Specifications:

<b>NO.</b>	<b>Product name</b>	<b>specification</b>	<b>quantity</b>
1	Host machine	CZE-05B	1
2	antenna	Rubber antenna	1
3	Power adapter	DC12V/1.67A	1
4	Audio cable	3.5mm audio cable	1
5	manual	e-instruction manual	1

## 5. All configurations

NO.	project	
1	working voltage	11~13V DC
2	working current	<300mA
3	frequency domain	76~108Mhz
4	frequency stability	±10PPM
5	stepped frequency	100KHZ
6	The operating temperature of the environment	-10°C~50°C
7	output impedance	50Ω
8	Rf power output range	H:500mW (L:100mW)
9	Harmonic and noise radiation	≤-60dB
10	audio distortion	<0.3%
11	frequency response	20HZ~15000HZ
12	Preemphasis delay	50us
13	degree of separation	≥40 dB
14	input level	≤-10dBV
15	Modulation frequency deviation	±75KHZ
16	SNR(Signal to Noise Ratio)	≥65 dB
17	Machine Size	113*88*38mm
18	Machine weight	269g

## 6. Operation Instruction:



1	Audio input volume adjustment	2	The 3.5 mm audio input hole
2	The power switch button	4	Increasing the frequency button
5	Frequency decrease buttons	6	The microphone input hole 3.5 mm interface
7	The microphone input volume adjustment	8	display
9	The 12V 1.67A power supply interface	10	TNC antenna interface

## 7.Power Adjustment

The transmitter output power is divided into two files: high power transmission (H) = 500 mw; Low power (L) = 100 mw  
 Shut off power adapter, operate according to the following steps under transmitter power line cut off condition.

- 1) Press **【⏻】** and don't let go, then connect power(DC12V connected to transmitter),loosen the key after 3 seconds. Then into power adjustment status, LCD displays "L" or "H"(picture default as H high power transmission)
- 2) Press key **【▲】** , set it high power file (H).
- 3) Press key **【▼】** , set it low power file (L).
- 4)Select the power file you need, press key **【⏻】** again, power setting completed and it automatically into frequency range setting interface.

## 8.Frequency Range Setting

- 1)1.Frequency band high-end setting: after frequency setting, press key**【⏻】** and into frequency range setting status, LCD displays 108MHz, this

frequency is high-end of working frequency band.(High-end frequency defaulted as 108.00MHz). Through keys【▲】【▼】to adjust the frequency you need to set.

- 2) Frequency band low-end setting: frequency band high-end setting completed, press key 【⏪】 and it will into frequency band low-end setting, LCD displays 76.00 Mhz. This frequency band is the low-end frequency,(low-end frequency factory defaulted as 76.00Mhz). Through keys 【▲】【▼】 to adjust the frequency you need to set.
- 3) After frequency range setting finished, press key 【⏪】 for three times, setting finished and return to background, LCD displays OFF.
- 4) Attention: Low-end of frequency band can't be higher than high-end of frequency band, or transmitter will stop to work!

## 9. Common Troubleshooting

	Undesirable phenomena	Reason
1	Can not be boot	1) outlet for power; 2) The power cord is plugged in; 3) the power adapter is normal.
2	Standing wave is greater	1) The antenna is not connected; 2) The antenna does not match; 3) antenna installation location next to the reflector too
3	Transmitter distance is close	1) feeder loss; 2) poor launch environment; 3) Output power is not adjusted; 4) antenna installation height is not high enough; 5) The antenna does not match; 6) receiver sensitivity
4	No power output	1) Output power is not adjusted; 2) Machine standby or power.



5	Audio muting	1) The master volume is not large; 2) the input audio signal is normal.
6	The microphone is silent	1) microphone is normal; 2) the microphone volume is not large; 3) whether the microphone dynamic microphone; 4) microphone is plugged.
7	Sound quality is poor	1) microphone quality is not good; 2) Input audio sound quality is not good; 3) antenna installation method is not correct; 4) audio signal or machine volume is not adjusted.

## 10. After-sales Service:

Thank you for choosing our product, we'll provide lifetime maintenance. Within 200days after purchasing, we provide all-free repairing. The following circumstances are excluded:

- 1) Problems caused by unauthorized disassembling or repairing on the product.
- 2) Problems caused by mis-operation without following the instruction.
- 3) Problems caused by man-made damage/hit/crash/water and other non-product quality problems.
- 4). The product being damaged by Thunder or other force majeure.
- 5). Product case, Li-on battery, microphone, charger, audio cable, charging cable and other accessories are not in free repairing range.

For products over or not belonging to the free-repairing period, we can provide repairing with very low cost.

- 1) We provide lifetime maintenance for product over the free-repairing period.
- 2) We can repair the products that over the free-repairing period or damaged manmade with very low cost.

## 11. Disclaimer

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

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

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.

Please use this product following local laws or regulations about using wireless products, otherwise the user will be responsible for any problems occurred by not obeying rules. We and our distributors are free of responsibility for that.

RF exposure warning :

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment shall be installed and operated with minimum distance 20cm between the radiator & body.