



## FC-950A Mobile (Vehicle)Radio

# User Manual

## Warranty

Please carefully read this manual before use this product.

In the case of normal use, this product performs the warranty regulations of the state. It enjoys two years of guarantee and lifelong maintenance.

The executive standard of this product is GB/T16611.

The production of this product is authorized by four licenses.



## **Thank you for purchasing our FC-950A high-performance mobile (vehicle) radio!**

This product is a high-performance radio which is specially designed for vehicle wireless audio intercommunication. It adopts advanced RF technique and microcomputer digital processing technology and has the outstanding performances such as clear communication, visual display, convenient, easy installation and smooth appearance. It is the first choice for the users of vehicle radio.

### **Special notes:**

- When the product occurs any failure, please contact with the company or its dealers to arrange technicians to check and repair.
- Never power it on when you install or dismantle the product.
- Use velvet towel to clean the radio.
- Different CTCSS can be set for transmitting and receiving.
- The transmitting time of Microphone can be set by software. The microphone will

automatically stop work if over the given time. It will retransmit after relaxing PTT key for 10 seconds.

## I. Introduction to keys

As shown in fig. 1.

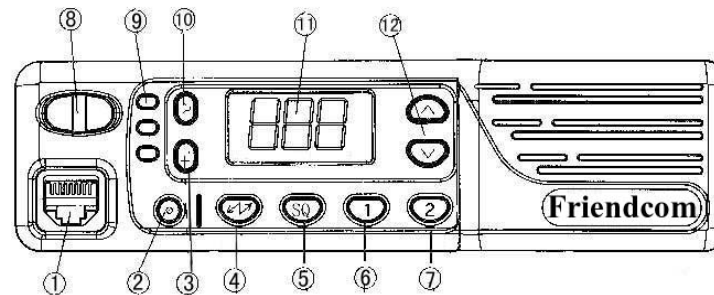


Fig. 1

- (1) Jack of microphone      (2) Key for power switch      (3) Key for transmission testing  
(4) Key for automatic scan of channel      (5) SQ deep/shallow selection key

- |  |                         |                              |
|--|-------------------------|------------------------------|
| ( 6 ) Key left for user                        | ( 7 ) Key left for user | ( 8 ) Vol +/-                |
| ( 9 ) Bi-color receiving and sending indicator |                         | ( 10 ) Monitor on/off        |
| ( 11 ) Channel display                         | ( 12 ) Channel +/-      | ( 13 ) PTT key of microphone |

## II. Symbols in LC display screen



Microphone monitor on ;



Channel scan indication ;


SQ LO low threshold noise reduction; SQ HI high threshold noise reduction ;

016 display channel number

## III. Operation

- a. **Connect antenna:** connect Q9 vehicle antenna to the antenna port in the back of the radio.
- b. **Connect power source:** connect the power source cable specially attached with this unit to outside 13.8V DC power.

**Note:** red cable is the positive of power and black cable is the negative of power.

- c. **Turn on the unit:** press the key (2) to switch on the power of the radio, light the display screen and display the current channel number, noise reduction deep/shallow indication.
- d. **Turn off the unit:** keep pressing the key (2) for 3 seconds to turn off the radio when the unit is in ON mode.
- e. **Noise reduction deep/shallow switch:** press SQ (5) to display SQHT in the display screen, expressing deep noise reduction, and it will start only when the receiving signal is strong, the signal-noise ratio of starting threshold is about 20dB. press SQ (5) again to display SQLO in display screen, expressing shallow noise reduction, and it can start if the receiving signal is weak, the signal-noise ratio of starting threshold is about 12dB.
- f. **Monitor control:** press Monitor (10) to appear the symbol , showing that it can monitor all signals and noises in current channel. Press Monitor (10) again, the symbol disappears, showing it is in noise reduction status. Only when the signal field of current channel is strong enough, it can hear the sound of current channel.
- g. **Channel switch:** press channel + (▲) one time, the microphone gives out a beep and

increases a channel. Press channel + (▼) one time, the microphone gives out a beep and decreases a channel.

- h. transmission testing:** press Transmission Testing (3), the red light of the three bi-color indicators is on, indicating that the radio transmits about 3s of testing sound for calling test between two radios.
- i. Volume adjustment:** press volume adjustment key ^ one time, the microphone gives out a beep and increases a volume grade. Press volume adjustment key v one time, the microphone gives out a beep and decreases a volume grade.
- j. Channel automatic scan:** press channel automatic scan (4), this radio will automatically carry out channel scan. When it has tested the channel with signal, it will stay about 3 seconds. If it needs this channel, press (4) again, it will stay at this channel, otherwise it will continue to scan.

#### **IV. Special functions**

- a. CTCSS noise reduction selective calling function:** it can set different CTCSS codes in the same channel with the setting software of this unit so that it can only make a call between the groups with same CTCSS code in the same channel, and it cannot make a call between the groups with different CTCSS codes, thus will greatly reduce the interference among the radios of different groups and the same frequency interference among illegal users.
- b. Channel selection function:** Unused channel can be screened with the setting software of this unit. The being screened channel number will not appear again when you press channel selection key. When you press channel automatic scan key, the scan will skip over the screened channel to save scan time.
- c. Secret alarming channel function:** press volume adjust button (  $\wedge$  ) and channel switch button (  $\blacktriangle$  ) at the same time, this radio will automatically switch to secret alarming channel, but at this time the channel number of the radio is not changed, and it is still the original number. The frequency of secret alarming channel is set and determined with the setting

software of this unit.

- d. **RSSI** : After the radio receives a signal (noise reduction turned on), the green lamp in first bi-color indicator is on. When the signal strength is about 20dB SINAD, the green lamp in second bi-color indicator is on. When the signal strength is about 30dB SINAD, all of three green lamps of bi-color indicators are on.
- e. **25W/5W RF power selection**: According to your communication environment, you can adjust the output power with the short connection of 16-core socket in the back of the radio, that is, the fifteenth pin of 16-core socket is hanged in the air, the output power is 25W; when the fifteenth pin connects fourteenth pin (earthing), the output power is 5W.
- f. **Key left for user**: Special functions can be custom-made according to the requirements of the user.
- g. **Interface left for user**: there is a 16-pin (or 26-pin) socket in the back of the radio, which is used for expansion. The arrangement of socket is shown in fig. 2.

1 2 3 4 5 6 7 8

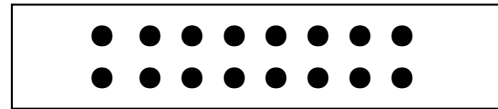


Fig. 2

16 15 14 13 12 11 10 9

- |                                   |                               |                             |                    |
|-----------------------------------|-------------------------------|-----------------------------|--------------------|
| 1 ~ 4 empty                       | 5. Field strength indication  | 6. Input of MIC signal      |                    |
| 7. Input of MOD modulation signal | 8. MIC output (+)             | 9. PTT transmission control |                    |
| 10. AUDIO signal output           | 11. SQ noise reduction signal | 12. RS-232RX                |                    |
| 13. RS-232TX                      | 14. GND                       | 15. 5W/25W option           | 16. MIC output (-) |

**h. Quickly upgrade as data transmission radio:** with suitable method, this radio can be quickly upgraded as data transmission radio, and can transmit the signals such as GPS, alarm, traffic information to vehicle dispatch center. While upgrade, you must contact with the company or technicians of the dealers of the company.

## V. Main technical Specifications

Frequency range: 146-174MHz; 220 ~ 240MHz; 350 ~ 370MHz; 370 ~ 390 MHz; 400 ~ 420MHz; 450 ~ 470MHz

Channels capacity: 64

Sensitivity: better than 0.25 $\mu$ v ( 12dB SINAD )

Channel spacing: 25KHz/12.5KHz

RF power: 25W/5W

Audio distortion:  $\leq$  3%

Receiving current :  $\leq$  400mA

Transmitting current :  $\leq$  3A ( 5W ) ,  $\leq$  8A ( 25W )

Power supply: +9V ~ +15V, typical value +13.8V

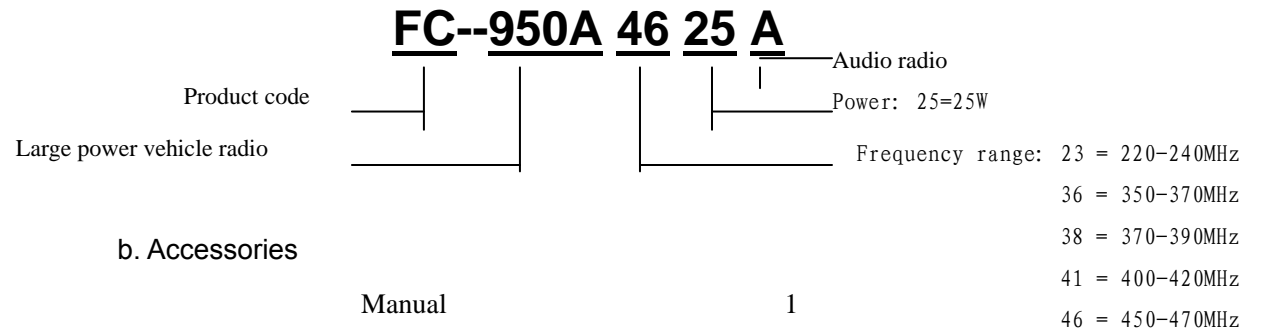
Operational temperature range: -20 $^{\circ}$ C ~ +60 $^{\circ}$ C

Overall size: 44mm $\times$ 168mm $\times$ 160mm

Weight: 1.0

## VI. Types and accessories

a. The description of type is shown as follows, and please supply detailed introduction when you play an order.

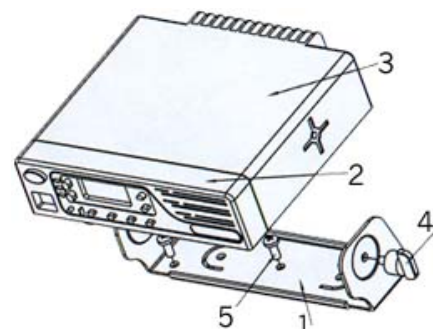


### b. Accessories

|                        |   |
|------------------------|---|
| Manual                 | 1 |
| Power wire (with fuse) | 1 |
| Parts for brackets     | 1 |
| Joint of microphone    | 1 |
| 10A Fuse (30X5)        | 2 |
| Screw bolts            | 2 |

## VII. Schematic drawing of installation

The installation is shown in fig. 3. Fix the bracket on the fixation rack with bolts then install the main unit on the bracket with screw bolts.



1. Rack
2. Shell of main unit
3. Box body of main unit
4. Screw bolt
5. Crosshead bolt M5X12

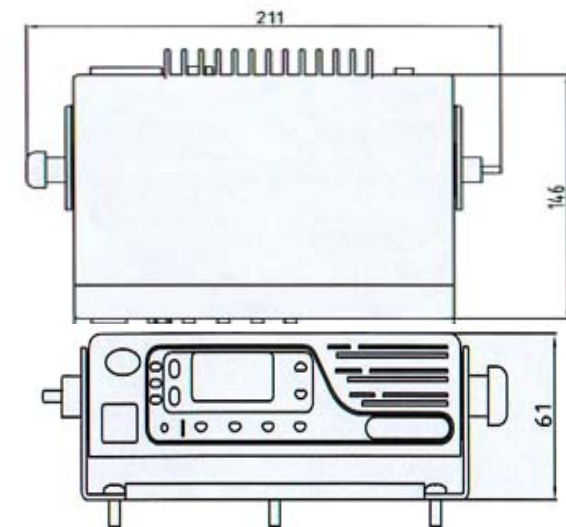


Fig. 3

### VIII. Common failures and troubleshooting

| No. | Failure  | Cause and troubleshooting  |
|-----|--|--|
| 1   | No light in display screen<br>Microphone has no sound  | a. The +13.8V power is not turned on. Check whether the power wire is connected correctly ?<br>b. The negative and positive pole of +13.8V power are connected contrarily The fuse is blown off. Re-connect power wire and replace new fuse. |
| 2   | Cannot make a call                                     | a. The setting of channel frequency is incorrect, re-set with setting software.<br>b. Not properly insert the jack of microphone.<br>c. The wire of microphone is broken, re-connect it.   |
| 3   | The appointed channel cannot be screened               | The channel screen is not set, re-set it with setting software.  |
| 4   | Same group can hear the calling sound of another group | The setting of CTCSS is not correct. Re-set with setting software.   |
| 5   | Short calling distance                                 | a. The antenna is not matched. Replace suitable antenna.<br>b. The core of feeder line is broken. Replace new feeder.<br>c. The power source cannot meet the use requirements. Replace good power source.                                    |

## Appendix I. Default setting

### A. Audio frequencies comparison form of 38 CTCSS numbers

| CTCSS NO. | Audio frequency ( Hz ) | CTCSS NO. | Audio frequency ( Hz ) |
|-----------|------------------------|-----------|------------------------|
| 1         | 67.0                   | 20        | 131.8                  |
| 2         | 71.9                   | 21        | 136.5                  |
| 3         | 74.4                   | 22        | 141.3                  |
| 4         | 77.0                   | 23        | 146.2                  |
| 5         | 79.7                   | 24        | 151.4                  |
| 6         | 82.5                   | 25        | 156.7                  |
| 7         | 85.4                   | 26        | 162.2                  |
| 8         | 88.5                   | 27        | 167.9                  |
| 9         | 91.5                   | 28        | 173.8                  |
| 10        | 94.8                   | 29        | 179.9                  |
| 11        | 97.4                   | 30        | 186.2                  |
| 12        | 100.0                  | 31        | 192.8                  |
| 13        | 103.5                  | 32        | 203.5                  |
| 14        | 107.2                  | 33        | 210.7                  |
| 15        | 110.9                  | 34        | 218.1                  |

|    |       |    |       |
|----|-------|----|-------|
| 16 | 114.8 | 35 | 225.7 |
| 17 | 118.8 | 36 | 233.6 |
| 18 | 123.0 | 37 | 241.8 |
| 19 | 127.3 | 38 | 250.3 |

B. Comparison of receiving and sending frequencies of channel (220-240Mhz).

| channel \ R/S freq. | Frequency of transmitter ( MHz ) | Frequency of receiver ( MHz ) |
|---------------------|----------------------------------|-------------------------------|
| CH1:                | 223.125                          | 223.125                       |
| CH2:                | 230.125                          | 230.125                       |
| CH3:                | 235.125                          | 235.125                       |

C. CTCSS setting is none