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User's Manual

Digital Two-way Radio

ATS-200,ATS-100



Fujian Wanhua Electron & Technology Co., Ltd.

Greeting!

We are grateful for your purchase of this transceiver. We believe our technology can bring great convenience to your life and work; we also believe that the quality and demands for reliable communication.

To make sure you can get familiar with the functions and proper operating methods of your transceiver, please read this instruction manual carefully.

Caution

Please read this manual carefully before using this transceiver

- Do not use the transceiver in the area where government prohibited.
- Do not expose the transceiver to direct sunlight for a long time, or place it close to heating appliances.
- Do not place the transceiver in excessively dusty, humid, and/or dabbing areas; nor on unstable surface.
- If the transceiver emits smoke or strange odors, turn it off and remove the battery from the transceiver and promptly contact your local dealer.
- The maintaining of transceiver only can be done by professional technician

Warning

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.

NoteAll pictures in this user's manual for reference only.

CONTENTS

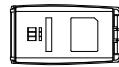
Packing List.....	3
Preparation	4
Charging.....	4
Mounting Battery.....	4
Mounting Antenna.....	5
Mounting Belt Clip.....	5
Mounting Speaker/Mic.....	5
Getting Acquainted.....	6
Basic Operation.....	7
Power On/Off.....	7
Slect Channel.....	7
Calling.....	7
Adjust the Volume.....	7
Analog Auxiliary Function.....	8
Squelch Level Setting.....	8
TOT.....	8
Wide/Narrow Band.....	8
Battery Save.....	8
Voice Reporting Number.....	8
Monitor	8
Add to Scan List	9
Scan Function.....	9
Manual Scan Switch.....	9
TX Power Selection.....	9
QT/DQT.....	9
Digital Auxiliary Function.....	10
Singe Call,Group Call,All Call	10
Digital Mode and Analog Mode Auto Switch.....	10
Troubleshooting Guide.....	11
Technical Specifications.....	12

— 02 —

► Unpacking and Checking Equipment

Carefully unpack the transceiver. We recommend that you identify the items listed in the following table before discarding the packing material. If any damage has occurred during shipment, file a claim with the carrier immediately.

* Supplied Accessories

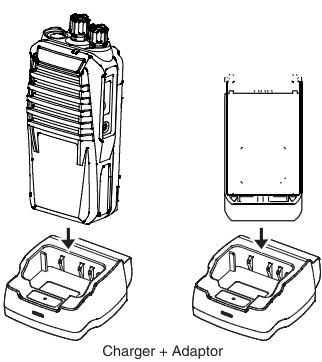
Description	Quantity	Dimensional Sketch
Antenna	1	
Charger	1	
Adapter	1	
Li-ion battery	1	
Belt clip	1	
User's manual	1	
Wrist loop	1	

— 03 —

► Preparation

* Charging the battery pack

1. Connecting the AC adapter and the charger;then plug the AC adapter into power jack with AC(100-240v)50/60, charger LED turns green.
 2. Put the battery or the transceiver matched with battery into the charger. Make sure the battery pack contacts are in contact with charging terminals. The charger LED turns red and charging begins. Charging time depends on the battery capacity. When LED turns green, charging finished.



Charger + Adaptor

* Installing /removing the battery pack

Installation turn off the transceiver ,push the battery pack along two aluminum alloy rabbets on the back of transceiver, then flatten the battery bottom to the transceiver, buckle until you hear a "click" sound.(Figure 1)

Removing the batteryTo remove the battery pack, make sure the battery pack has been shut down, and then push out the intercom button at the bottom of the battery, and the battery removed from the walkie-talkie.(Figure 2)

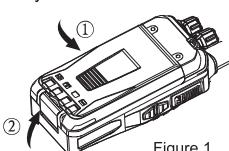


Figure 1

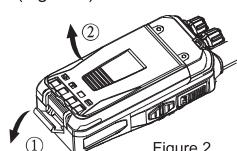


Figure 2

Caution:

- * When charging,please turn radio off,to make sure fully charged.
- * When temperature above 35° or under -10°,battery may discharge less.It's because of battery physical property.
- * Don't short out metal terminals of battery or throw battery into fire,Don't disassemble battery.

* Installing the antenna

Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turn it clockwise until secure.(refer to figure3)

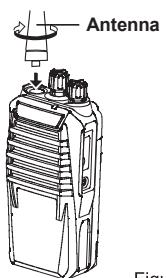


Figure 3

* Installing/removing the belt clip

Install the belt clip to the back of radio by two screws.To remove the belt clip,unscrew the screws then take out the belt clip away from the radio. (Figure 4)

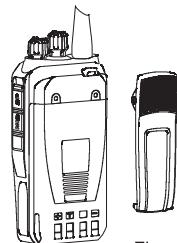


Figure 4

* Installing the optional speakers/microphone

Remove the rubber cover (marked with SP/MIC) and insert the speaker/microphone plugs into the SP/MIC jack.

CAUTIONS:

To be sure high quality audio, pl. load it with original SP/MIC from the transceiver supplier. (refer to Figure 5)

Be sure the SP/MIC plug well contacted with the insert jack.

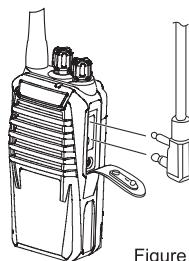
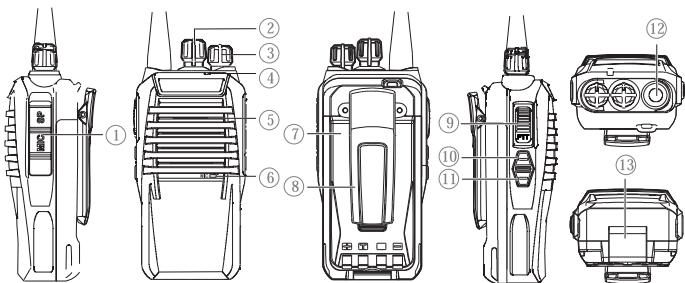


Figure 5

► Getting acquainted



1. **External interface:** connect with headset and program line
2. **Channel switch:** Rotate this switch to select channel (CH1–CH15), CH16 is scan channel.
3. **Power/Volume switch:** Rotate the switch clockwise to power on the radio, anticlockwise to power off the radio. Rotate the switch after powering on to adjust volume.
4. **Indicator light:** when transmitting ,the LED is red; when receiving, the LED turns green.
5. **Speaker:** output sound
6. **Microphone**
7. **Battery pack:** Li-on rechargeable
8. **Belt clip**
9. **PTT key:**Press and hold this key to talk, release the key to hear the other party's talk.
10. **Monitor key:** Press and hold this key to start the squelch function, then background noise can be heard. Rotate the Power/Volume switch to change volume and release the Monitor Key to close the Squelch function. (Analog mode: Monitor function. Digital mode: Single Call function)
11. **Group Call key:** Digital channel: Group call; Analog Channel: this key is invalid.
12. **Antenna**
13. **Battery lock**

----- 06 -----

► Basic Operation

* Power on/off

[Power on] When radio is off, rotate clockwise to turn on the power.

[Power off] when radio is on, counterclockwise to turn off the power.(Figure 6)

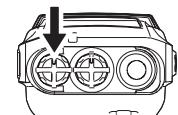


Figure 6

* Select channel

Rotate the channel switch to choose the channel. If rotate the channel switch to CH16,it will automatically into scan mode.(when scan function is open)(Figure 7)

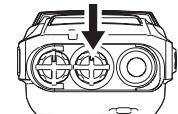


Figure 7

* Calling

Press PTT, indicator lights up. Talk with normal volume. (Figure 8)

Note: Please keep your mouth away from microphone 3cm-5cm.

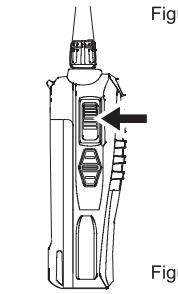


Figure 8

* Adjust the Volume

Under analog channel, press MONITOR, and rotate Power/Volume switch to adjust the volume. (Figure 9)

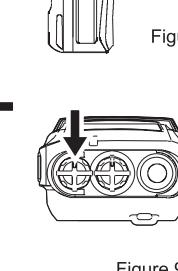


Figure 9

----- 07 -----

Auxiliary Function in Analog Mode

Squelch Level Setup

This function is to mute the speaker when no signal received. If the squelch level is setup too high, weak signal won't be heard. If the squelch level is setup to low, the signal will be heard with noise background. The squelch level can be setup via programming software, ranging from 0-9. Default: 4.

TOT

This function is to prevent any single transceiver from longtime transmitting and avoid occupying a channel overtime which might cause damage to radio. If the transceiver transmit overtime (limit time can be setup by programming software), it emits warning alarm and stops transmission. Under this condition, release PTT button and press PTT again to resume transmission (default: 60s) Note: Setting of the TOT can be effected via programming software.

Wide/Narrow Band

Users can set channel spacing for each channel via programming software.

Battery Save

When this function is on, the radio can save battery when no signal received or operation. When the radio is in the state of no operation or no signal for 5s, the Battery Save function starts automatically. When a signal is received or any operation is effected, the radio exits Battery Save function automatically.

Voice Reporting Number

Two options as English and Chinese are available. To change language setting, pls firstly rotate the channel knob to channel 16 before powering off the radio, then power on the radio when holding the Emergency Alarm Key for 2 seconds. Thus, the language setting can be changed. You can also change the language setting via software.

Monitor

In analog channel mode, press Monitor Key. This operation is effected to adjust volume or receive weak signal.

Add to Scan list

Users can add any one of 16 channels to Scan list. When a certain channel is added onto Scan list, the channel will be scanned when Scan function is on. If not, the channel won't be scanned when scan function is on.

Scan Function

When Scan function is enabled, after rotating the Channel switch to Channel 16, the transceiver will enter Scan mode automatically. When a signal is received, scan will pause at current channel. Scan resumes 5s after signal disappears. Press *PTT* key. Pressing PTT, the transceiver transmits on Channel 16 if it is under scan mode. If scan pauses, the transceiver will transmit on current channel.

Manual Scan Switch

Firstly rotate the Channel Knob to channel 15, then power on the radio when holding PTT key to On or Off the Scan function.

TX Power Selection

Via programming software, users can select high or low TX power.

CTCSS/DCS

This radio has CTCSS and DCS (PC programmable). Some channels can pre-programmed with CTCSS/DCS tones. A CTCSS/DCS tone is a sub-audio tone. On the same channel, only the same CTCSS/DCS tone can communicate. When you receive a signal that has different CTCSS/DCS, you will not hear the signal.

*Note*Although using channels set with CTCSS/DCS tones relieves you from listening to unwanted calls,it does not mean your calls will be private.

Low Battery Warning

Low battery warning alert "Beep" at intervals of 10 seconds, the battery needs to be recharged or replaced.

Auxiliary Function in Digital Mode

Single Call, Group Call, All Call

Press MONI Key to effect Single Call. Press Group Call key to effect group call key. Press PTT to effect All call key. Single Call ID:XXXXXXX; All Call ID:*****; Group Call ID:0000000*(*refers to number from 0-9). The ID can be programmed via programming software.

Digital Mode and Analog Mode Auto Switch

If the Analog channel does not setup with CTCSS/DCS signalling, users need to wait for 800MS. If no digital signal is detected within 800MS, the radio can be switched to Analog Channel with CTCSS/DCS signalling.

► Trouble-shooting Guide

Problem	Analysis	Solutions
Can not switch on	The battery is not well connected	Take battery out and pack to radio again
	Battery power is low	Charge battery or replace it
	Battery contact has dirt or damaged	Clean the battery contact.
When RX, voice is low* intermittent, or no voice	Battery voltage is low	Charge battery or replace it
	Volume is low	Adjust volume
	Antenna loose or not well connected	Turn off radio, and connect antenna again
Unable to communicate with others in same group	Speaker damaged	Do simple cleaning.
	Frequency or CTCSS/DCS are different with others.	Set same frequency and CTCSS/DCS with others.
	Different setting on digital channel, analog channel.	Set same digital and analog channel with others.
Receive other voices or noises	Long distance with others.	Close to others.
	Get interference from others in same frequency.	Change frequency or set squelch level.
	Didn't set CTCSS/DCS.	Set CTCSS/DCS to all radios in same group.
Big noise	Long distance with others in same group.	Close to others.
	In bad position, eg high building or underground.	Move to open air area, turn on radio and try again.
	Interference by electromagnetism.	Keep away from interferential equipment.

If above solutions are not workable, or you meet other problems, please contact local dealer or vendor to get more technical support.

Technical Specifications

Frequency	406.1~470MHz
Voltage	7.4V (Li)
Channel Number	16
RF Power	5W
Dimensions	(64mmx141mmx40mm)(exclude antenna)
weight	214g(main handset with battery and antenna)

*Note*Other frequency ranges can be customized by dealers.

Above technical specification is for reference only.

FCC Warning

Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

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

RF Exposure complianceStatement and operating instructions

The device has been tested against the SAR limit (8W/kg). The highest SAR value reported under this standard during product certification for use at the Face up is 1.042W/kg and when properly worn on the body is 1.730W/kg. This device was tested for typical operations.

The device only supports simplex-mode and transmitting is no more than the rated duty cycle factor of 50% of the time. For hand-held operation, the radio should be held at least 25mm from the user's face. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with RF exposure requirements, and should be avoided. Use only the supplied or an approved antenna.