

USER'S MANUAL

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- CALL key sends dual tone and dual tone signal to set STONE signaling setting
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- Please observe the following precautions to prevent fire, personal injury and damage to equipment.
 - 1 Do not use the machine outdoors or in a high-humidity environment.
 - 2 This machine table is designed to use 120V AC power supply, and do not use 240V power supply for power supply.
 - 3 Do not place the machine in a dusty, wet or slippery place, and do not place it on an unstable surface.
 - 4 If the reception is interrupted by the outside, keep the unit away from interfering equipment (such as TV set, generator, etc.).
 - 5 Do not expose this unit to direct sunlight for a long time or place it near the heating device.
 - 6 If the machine emits smoke or strange smell, the machine should be cut off immediately. After confirming that the machine is safe, send it to the nearest maintenance service station for inspection.
 - 7 Do not transmit with high power output for a long time, this may cause the intercom to overheat.

Unpacking and inspection device

Welcome to the radio. Before use, I suggest you:

- 1 Please check the packing box of this product for signs of damage;
- 2 Please carefully open the packing box and confirm whether there are items listed in the table below;
- 3 If you find that this product and its accessories are lost or damaged during handling, please contact dealer immediately.



7 DATA_A

SP

DATA_B

1 PTT

2 GND

3 SP (Serial output)

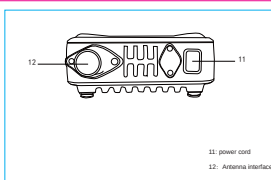
4 GND

5 DATA_B

6 DATA_A

7 DATA_A

Note: the PC part is always the power supply

[illegible][illegible]

Menu function setting operation (which can be operated by keyboard)

- [MENU] → [FREQ]** TDR tone rate of the dual-frequency identifying setting. OFF or ON can be selected by the [ENTER] key. When OFF is selected, the sequence parameter is not set. When ON is selected, the sequence in the OFF or ON key setting is the frequency indicated by the value of the status. After the sequence parameter is set, the [ENTER] key is pressed.
- [MENU] → [FREQ]** STREP sets the step value of frequency in frequency mode. It can be set in 0.00Hz, 0.1Hz, 0.5Hz, 1Hz, 2Hz, 5Hz, 10Hz and 20Hz. After adjustment, please press the [ENTER] key to save the parameters.
- [MENU] → [FREQ]** STREP sets the step value of the tone rate, which is selected by the [ENTER] key. The step depth according to the use environment. It can be 0 or 1. After adjustment, please adjustment, please press the [ENTER] key to save the parameters.
- [MENU] → [FREQ]** TDR frequency setting, relation to the step depth according to the use environment. After adjustment, please the [ENTER] key to save the parameters.
- [MENU] → [FREQ]** 3CH sets voice frequency scanning setting. OFF or ON, and auto recognition can be selected by the [ENTER] key. When OFF is selected, to store the parameters. (The function is not available).
- [MENU] → [FREQ]** TDR extension time setting. Set the extension time of the tone rate. The value range is 0 to 10 seconds, select by the [ENTER] adjustment, press the [ENTER] key to save the parameters.
- [MENU] → [FREQ]** A.T.O.S. is adjusted the signal value of the 2nd tone. The higher the number, the higher the value.
- [MENU] → [FREQ]** WTS sets auto name band setting. WTS is wide-band and narrow-band. After adjustment, please the [ENTER] key to save the parameters.

[illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible]

Select menu item **[J]** to delete the channel. Press **[J]** again. **[Q]** **[M]** **[M]** **[J]** **[J]** (DOWN) to select the channel number to be deleted. **[M]** **[M]** to delete the channel.

Store radio channel

You can store radio programs and corresponding parameters through PC frequency writing software. (click channel of frequency writing software to edit). The microphone handle of this machine can send DTMF in real time in the transmitting state. In FIM mode, press **[J]** key on the microphone keyboard to search radio channels in sequence.

Switch keyboard lock

Press the key **[J]** of the microphone keyboard for no less than 2 seconds during standby time to turn on or off the keyboard lock function.

[illegible][illegible]

When the received DTMF signal is consistent with the present monitoring code, the receiver will start to transmit the next code. This function can choose whether it is controlled by the master ID, and not by the receiving signaling. The monitoring code can be preset by PC writing software.

Teleflash function

When the received DTMF signal is consistent with the present tele-flash code, the receiver will initiate the transfer function to work only in the receiving state, and will not prompt. The normal function cannot be executed. The corresponding border code is received. This function chooses whether it is controlled by the master ID, and the receiving signaling. (Teleflash code can be preset by writing software).

Remote detect function

When the received DTMF signal is consistent with the present remote code, the receiver will restrict the user to display and prompt. This function cannot be restricted until the corresponding border code is received.

Best function

After the **bestowed DTMC** signal is connected with the **alarm** block, the **alarm** will check the function of the **bestowed DTMC** signal. The **alarm** block function can choose whether it is controlled by the master function or to choose the meaninging (the power can be used for generating PC writing software).

Alarm function

After the **bestowed DTMC** signal is connected with the **alarm** block, the **alarm** will give an alarm, and the **alarm** block and **alarm** element can be added through the **parameter parameter** option of PC frequency writing software. The **alarm** block is not controlled by master function ID and meaninging signal. The **alarm** block can be preset by PC writing software.

[illegible]

- press the [MENU] key (menu function key) to select 200:OPT3 and then press the [P] key to select OPT to start ETCN[®] signaling.
- Press the [F2] key to select the 200 item to edit then press the [P] key to select the pre-programmed signaling group numbers 1-16. ETCN[®] information can be set by PC writing frequency numbers. Each group can send 3 groups of ETCN[®] codes at a time, and you choose not to fill them out as needed.
- Press the [CALL] key to manually mode to send the selected ETCN[®] information code group.

A diagram of a mobile phone with various components labeled. The labels include: Power, Micro, Handset and antenna, External speaker, Optional signaling, MMS, RF and subcarrier frequency, VCO and narrow band, Scrambling frequency, Frequency, Baseband processor, Speech processor, Digital processor, RF module, and Antenna array (external antenna).

Hand microphone description (optional)

① Headpiece with boom microphone and hand piece
 ② Headpiece CCL and long pin, ALUMIN
 ③ "MPT" function key
 ④ "SPK" frequency chip capacitor
 ⑤ "TONE" tone chip capacitor
 ⑥ BESTTONE™ handpiece channel switching, alarm function
 ⑦ ★ "ALC" frequency meter scale, scale number "1"
 ⑧ "ALC" hybrid base function, number "1"
 ⑨ "1" the number 1
 ⑩ "2" the number 2
 ⑪ "3" the number 3
 ⑫ "4" the number 4
 ⑬ "5" the number 5
 ⑭ "6" the number 6
 ⑮ "7" the number 7
 ⑯ "8" the number 8
 ⑰ "9" the number 9

When connecting a hand mic, the mic should be connected to the correct pin and the correct pin should be connected to the correct pin.

Menu definitions				
0	MBU	Multi-frequency waiting	ON	Turn off multi-frequency waiting and start multi-frequency
1	STEP	Frequency Step Size Select	2.2 in 2MHz	2.2, 3.2, 4.0, 16, 18, 20 MHz
2	ISL	Search Power	00 - 09	00 - 09 00 - 09: 100% power, 100 - maximum (maximum is 100%)
3	TP	Transmit Power	High	40 - 90 dBm
4	SCR	Voice Range/Hz	Low	Reduced Power
5	TRF	Time Out of Range	ON	Activate Transceiver Function
6	TRF	Time Out of Range	15 - 400 seconds	Deactivate Transceiver Function 15 second default
7	TRF	Time Out of Range	OFF	Transmit Time of Range
8	TRF	Time Out of Range	OFF	Deactivate Transceiver Function
9	TRF	Time Out of Range	1, 2, 3	Transmit Time of Range 1 second - 3 seconds
7	WNR	Bandwidth	Wideband	25.2 kHz
8	WNR	Bandwidth	Narrowband	12.6 kHz
8	WNR	LCD Bandwidth Times	1 - 10 times	Bandwidth duration = 1 x 10 Bandwidth times ON

[illegible]

16	IGMPv2	Ad-hoc Event Channel	ON	Ad-hoc channel enabled
17	LANE802.3	Menu language	OFF	Menu language set to English
18	DMR_TX	Multi-guard extension	OFF	The menu is displayed in Chinese
19	DMR_TX	Multi-guard extension	ON	Menu item for the multi-guard extension transmission with the main frequency transmission
20	IGMPv2	Source Reserve Method	CO	(Source Operations) Don't reserve when signal is detected (Channel 5) Don't reserve when signal is detected (Channel Operations) Don't reserve when signal is detected (Channel 5) Don't reserve when signal is detected
21	OPT100	Optical Isolation	OFF	No optical isolation
22	OPT100	Optical Isolation	ON	Optical isolation is selected
23	OPT100	Optical Isolation	OFF	Optical isolation is selected
24	OPT100	Optical Isolation	ON	Optical isolation is selected

1	OPEN	Open the selected storage device	OK	Flash disk opens after the CTOS5.00 OK if the selected topology is recognized.
			OFF	Do not read
2	PTTSD	PTT ID will be found	GOOD	Start of Beginning of Transmission
			GOOD	End of Beginning of Transmission
3	PTTSL	PTT ID is a correct value	GOOD	Start of Beginning and End
4			0-36	End Data Frame
5	ENQSP	Open Mode	OK	Send Open mode and ID code
			GOOD	Read the above
6	ENSCM	Open Channel	GOOD-100	Channel Open Channel
				On the channel, OK if the channel is opened
7	VID	Addressed channel	CH, 1, 2, 3, ... 10	Channel number, with 1, 2, 3, ...
8	CHNAME	Channel Name	OK	Channel name
9	CHNAME	Channel Name	OK	In Channel mode, the Current Name
10	CHDEF	Channel Display Mode	PREP	In Channel Mode, display the selected mode
			OK	
			NAME	

31	VDR-T	Voice control delay	0, 1, 2, 3, ... 20	The signal disappears to stop transmitting the character without waiting for the end of the character
32	ST-FC	Status bar character color	colour	Color setting of upper status character display
33	MF-FC	Color of dominant character	colour	Color setting of main frequency character display
34	SA-FC	A-character color	colour	Color setting of characters in channel A display
35	SB-FC	B-character color	colour	Color setting of characters in B-channel display
36	MEMCH	Memory Channel	000 ~ 199	Includes channel number to be stored. "CH" appears after channel is stored.

38	EPG2	Frequency Shift Direction	OFF	No Offset (jamp0)
			-	High frequency shift
			+	Music frequency shift
39	OFFSET	Frequency Shift Offset Amount	0.020 ~ 0.020	Frequency shift by MHz
40	AI#	AI# LED Color	Can be set by set up software	
41	AI#L	AI# Length	2 ~ 6.5	Length of AI# LED
42	REP#	Repeater Activation Time	1000H, 1000H, 1700H, 2100H	AI# tone for repeater activation
43	SFC-FC	C character color	color	C character display area character color setting
44	SUB-FC	Color of sub-C characters	color	Sub-Sub-Display character color

46	PNTR	Dependent ScanPin In	OFF	Function OFF
		Dependent on the scan pin function.	1 - 10	Delay Time
47	CPTR	Dependent ScanPin In delay	OFF	Function OFF
		Dependent on the scan pin function.	1 - 10	Delay Time
48	RESET	Reset Mode	WFO	Waveform
		Reset Mode		Waveform
49	TRF	TRF Character	color	Memory channel to waveform display Character color
		Display color for waveform character		Display color of bottom channel
50	RETRF	Waveform Character color	color	Display color when characters when setting waveform
		Waveform character color		Color displayed when currently active channel waveform
51	TRF	Extension-character color	color	Color displayed when characters when channel waveform
		Extension-character color		Color indicated by current active channel waveform
52	RETRF	Waveform Character Color	color	Display color when
		Waveform character color		Color indicated by waveform displayed when the channel is selected, it is displayed in current waveform
53	MEM-CH	Channel storage	000 ... 199	Channel number

ESP-5	Threshold signaling	1000	the parameters, search operation, since the parameters of the specified element
TH-05	Main frequency return delay	OFF, 1, 2, 3, --50	when hunting, it can be tracked when it is present (all of the single frequency may be continued on the way)
RFT-05	Tracking tail delay	OFF, 1, 2, 3, --50	Main frequency return delay during frequency tracking
DFW-6	Dual tone multifrequency group	OFF, 1, 2, 3, --50	Control the tail sound of the entry to control the tail attraction
TH-07	TH-07	0	tail TH-07 group, the larger the value, the less the change the TH-07 signal will be the direction
SIG-09	Signaling valid prompt	0/1	Don't control when optical signaling is valid
		0/6	Remain valid when optical signaling is valid

Overall specifications	
Frequency range	1.50-1.600GHz (60MHz) CW 1.50-1.700GHz (200MHz) CW and 1.5-1.600GHz (pwr. trade off.)
Number of channels	200 channels
Channel spacing	200 kHz, 250 kHz, 300 kHz, 12.5 kHz
Phase-locked stepping	50%, 6.250%, 100%, 12.50%, 100%, 100%, 100%
operating voltage	13.5V DC $\pm$ 10%
Mod. mode	CTCSS / DCS / V-Me / F-Me / DTMF
frequency stabilization	$\pm$ 1.0ppm
Operating temperature of degree	-40 $^{\circ}$ -60 $^{\circ}$ C
measure	58 (W) $\times$ 26 (H) $\times$ 110 (D) mm
weight	400g

SA	Bandwidth	narrow band
10	Sensitivity (1.5dB SINAD)	$\leq 0.25\mu\text{V}$ $\leq 0.3\mu\text{V}$
11	Adjacent channel selectivity	$\geq 70\text{dB}$ $\geq 60\text{dB}$
12	Intermodulation	$\geq 45\text{dB}$ $\geq 40\text{dB}$
13	False signal response	$\geq 70\text{dB}$ $\geq 70\text{dB}$
14	Audio response	$\pm 1.5\text{dB}$ (0.3-30KHz) $\pm 1.5\text{dB}$ (0.3-2.55KHz)
15	SNR	$\geq 45\text{dB}$ $\geq 40\text{dB}$
16	Audio distortion	$\leq 5\%$
17	Audio output power	$\geq 2W \pm 10\%$

	Bandwidth	narrow band
output rating	200W(HR/LHF)	
modulation system	16K0F3E	11K0F3E
adjacent channel power	≥ 70dB	≥ 60dB
dist.	≥ 40dB	≥ 30dB
frequency and harmonic	≥ 90dB	≥ 80dB
audio response	+1 ~ -3dB (0.3 ~ 30KHz)	+1 ~ -3dB (0.3 ~ 3.5KHz)
audio distortion		≤ 0.5%

Note: All specifications are subject to change without prior notice or liability.

FCC Compliance Requirements

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.

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.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIO/TELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

Warning Information

Use our radio in USA is subject to the rules & regulations of FCC. Changes or modifications not expressly approved by us may void the user authority granted by the FCC to operate this radio and should not be made. To comply with FCC

requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services. Replacement of any transmitter component (crystal, varactor/diode, etc.) not authorized by the FCC equipment authorization for this radio could violate FCC rules.

Note: Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.

Important: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this device. Your radio is set up to transmit a regulated signal on an assigned frequency. It is against the law to alter or adjust the settings inside the radio to exceed those limitations. Any adjustments to your radio must be made by qualified technicians.