

## Instructions for Dual Band Vehicle Transceiver

### Remind:

Purchase and use of this equipment belongs to set up using the radio (station) behavior, we must apply the law to establish the station approval procedures to obtain a radio station license. When using the machine, it should work in accordance with the station license approved projects. Arbitrarily set using a radio (station), interference of radio services, not according to the approved project work and other violations of radio regulations by the radio management organizations subject to administrative penalties.

Thank you very much for purchasing our products. Our company devotes to supply the best quality and expeditionary vehicle transceiver. We believe that you would be satisfied with our products.

### Note:

Please obey following rules, so that can avoid fire, the harm on person or damage on vehicle transceiver.

- When you are driving, please do not try to setting the vehicle transceiver, otherwise it will lead to dangerous consequences.
- This vehicle transceiver should be connected to 13.8V DC power supply! Do not use 24V power supply to operate this vehicle transceiver
- Please do not transmit by high power for a long time, otherwise the vehicle transceiver will be over-heated and the lifespan will be shortened.

- Please do not put vehicle transceiver under the sun overtime, and do not put in beside the heating equipment.
- Please do not put the vehicle transceiver in the place where is dusty and moist, and do not put in one the uneven flat.
- If there is smell or smog from vehicle transceivers, please turn off the power and contact the dealer.
- Using vehicle transceiver when driving may violate traffic rules, please obey local traffic rules.

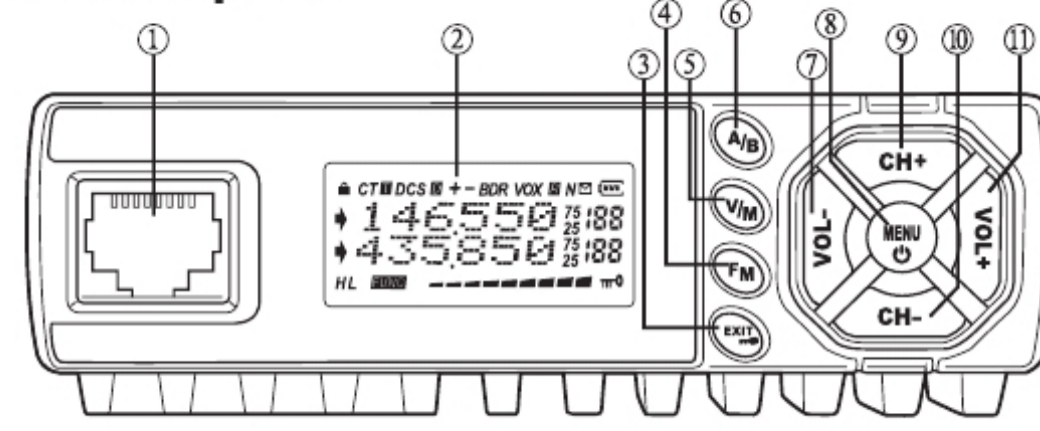
### Unpacking and Inspection: Standad Configuration

Welcome to use radio. Before using, we suggest you:

- Please check the packaging of this product if there is damage.
- Please carefully open the box checking whether the products are as following listed table.
- If there is any damage or lost of product and its accessories during transportation, please contact dealer immediately.

ITEMS	QTY
Machine body	1
Hnd microphone	1
Assembly supporting rack	1
Power line	1
Screws	1
Instructions	1

### Panel Description



- Hand microphone/Frequency writing connection hole
- Display screen
- Quit/locking key
- Radio button
- Working mode switch
- Upper and lower frequency switching
- Volume down
- Power switch/function button
- Up
- Down
- Volume up

### Display screen

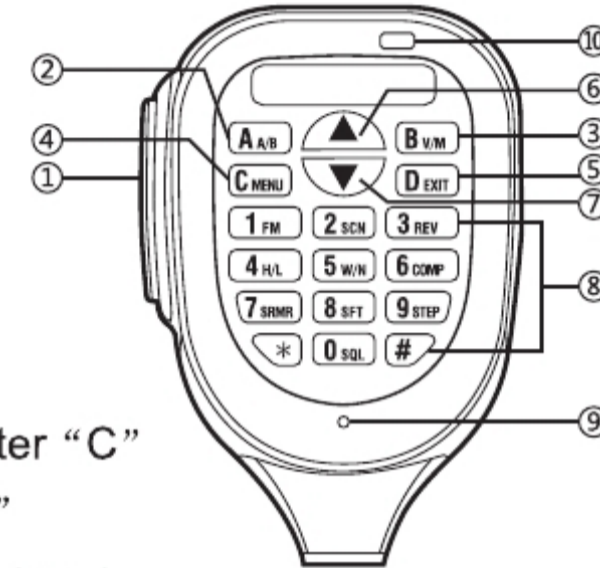
Picture	Instruction
-----	When transmitting, the screen indicates transmitting signal strength and when receiving, the screen indicates receiving signal strength.
188	In channel mode, channel serial number is shown under the frequency and channel name. When setting the menu, screen shows the current menu number.
146550 435850	Indicating receiving and transmitting frequency, FM frequency, menu, menu value and other status.

Picture	Instruction
	This symbol is undefined.
CT	Indicating CTCSS, when it shows during transmitting, it indicates CTCSS is during transmitting.
	Indicating the scrambler function is opening.
DCS	Indicating digital sound, when it shows during transmitting, it indicates DCS is during transmitting.
	Indicating companding function is opening.
+	When this symbol shows under the frequency mode, it indicates the transmitting frequency is receiving frequency plus a slip frequency.
-	When this symbol shows under the frequency mode, it indicates transmitting frequency is receiving frequency minus a slip frequency.
BDR	This symbol shows when repeater function is opening.
VOX	This symbol is undefined
	The receiving and transmitting frequency is reversed when in frequency and channel mode.
N	This symbol shows when channel working in narrowband way.
	This symbol is undefined.
	This symbol is undefined.

Picture	Instruction
	This symbol shows when keyboard is locked, and it will be relieved when long pressing "EXIT".
H	Indicating the current transmitting frequency is a high frequency.
L	Indicating the current transmitting frequency is a low frequency. (The middle frequency will not indicate)
	Indicating the current working frequency of transmitting, receiving and standby.

### Hand microphone

- [PTT]: Transmitting
- [A/B]: A/B channel switch, character "A"
- [B V/M]: Working mode switch, character "B"
- [C MENU]: Function key, character "C"
- [D EXIT]: Exit key, character "D"
- [↑]: Frequency, channel and menu up
- [↓]: Frequency, channel and menu down
- Number key: Number "0-9, \*, #"
- Microphone: Press [PTT], talk to microphone
- Transmitting indicator: Transmitting indicator



### Hand microphone shortcut key operation instruction

Function	Operation process
Frequency adjusting	Press [A/B] → ↑/↓ key to adjust frequency → or input frequency needed directly by keyboard.
Working mode selecting	Press [B V/M], (once the key pressed, the working mode is circulated in frequency mode → channel frequency+channel number → channel name+channel number)
FM radio	[C MENU] → [1FM] → ↑ (channel selection) → ↓ (channel selection), press [D EXIT] to exit.
Frequency scanning	[C MENU] → [2SCN], press ↑/↓ can change up scanning or down scanning → [C MENU] (stop in current channel) or [D EXIT] (stop in current scanning channel)
Reverse frequency setting	[C MENU] → [3REV], start receiving/transmitting exchanging and reliving: same movement
Transmitting frequency adjusting	[C MENU] → [4H/L] → ↑ (up)/↓ (down) → [C MENU] exit.
Channel working bandwidth	[C MENU] → [5W/N] → ↑ (up)/↓ (down) → [C MENU] exit.
Companding function	[C MENU] → [6CMP] → ↑ (up)/(down) → [C MENU] exit.
Encryption function	[C MENU] → [7SRMR] → ↑ (up)/↓ (down) → [C MENU] exit.
Slip frequency direction	[C MENU] → [8SFT] → ↑ (up)/↓ (down) → [C MENU] exit.

Function	Operation process
Step frequency setting	[C MENU] → [9STEP] → ↑ (up)/↓ (down) (2.5K, 5.0K, 6.25K, 10.0K, 12.5K, 25.0K, 50K) → [C MENU] exit.
SQL adjusting	[C MENU] → [0SQL] → ↑/↓ key (SQ0~SQ9) → [C MENU] exit. (SQ0 is SQL opening, there is rustle in the background, SQ1 is the most sensitive one, and SQ9 is the lowest one)

### Menu function setting operation

Menu setting step: [MENU key] → [MENU key] → [CH+ key] or [CH- key] to select → [MENU key] enter to select items → [CH+ key] or [CH- key] to adjust parameters → [MENU key] to storage → [EXIT key] exit.

The right number in the screen is the item number:

Menu	Character displaying	Function description	Second level menu displaying character	Second level menu setting description
01	R-CTC	Receive CTCSS	OFF 67.0~254.1Hz	No CTCSS CTCSS standard series
02	R-DCSN	Receive digital sound positive code	OFF D023N~D754N	No CTCSS Digital sound correcting code standard series
03	R-DCSI	Receive digital sound inverse code	OFF D023I~D754I	No CTCSS Receive digital sound radix-minus-one complement standard series

Menu	Character displaying	Function description	Second level menu displaying character	Second level menu setting description
04	R-MOD	The horn opening method	QT QT+ANI	The horn opens when CTCSS frequency matches. The horn opens when CTCSS frequency and credential code both can be matched.
05	T-CTC	Transmit CTCSS	OFF 67.0~254.1Hz	No CTCSS CTCSS standard series
06	T-DCSN	Transmit digital sound positive code	OFF D023N~D754N	No CTCSS Digital sound positive code standard series
07	T-DCSI	Transmit digital sound inverse code	OFF D023I~D754I	No CTCSS Digital sound inverse code standard series
08	T-DTM1	Press PTT to transmit dual tone multiple frequency	OFF DTMF1~8 D1~8+ANI ANI	Press PTT to stop transmit code Press PTT to transmit DTMF code Press PTT to transmit DTMF and ANI code Press PTT to transmit ANI code

Menu	Character displaying	Function description	Second level menu displaying character	Second level menu setting description
09	T-DTM2	Loose PTT to transmit dual tone multiple frequency	OFF DTMF1~8 D1~8+ANI ANI	Loose PTT to stop transmit code Loose PTT to transmit DTMF code Loose PTT to transmit DTMF and ANI code Loose PTT to transmit ANI code
10	POWER	Set transmitting frequency	HIGH MIG LOW	Transmit with high frequency Transmit with middle frequency Transmit with low frequency
11	W/NA	Select bandwidth	WIDE NARR	Wide band working Narrow band working
12	COMP	Voice companding	OFF ON	No companding function Open companding function (improving communication clarity)
13	SRMR	Voice encryption	OFF ON	No voice encryption function Open voice encryption function (to make voice encryption on communication)

Menu	Character displaying	Function description	Second level menu displaying character	Second level menu setting description
14	SFT	Slip frequency direction	OFF + -	In the frequency mode, transmitting frequency and receiving frequency have not slip frequency In the frequency mode, transmitting frequency is receiving frequency plus slip frequency In the frequency mode, transmitting mode is receiving frequency minus slip frequency
15	OFFSET	Slip frequency	00.0000-90.0000	In the frequency mode, the slip frequency between transmitting and receiving frequency
16	STE	Stepped frequency	2.50K 5.00K 6.25K 10.00K 12.50K 25K 50.00K	In the frequency mode, press UP and DOWN to change frequency step value
17	CH-MEM	Channel store	000~127	When storing channel, it indicates the storage channel number
18	CH-DEL	Channel delete	000~127	When deleting channel, it indicates the deleting channel number

Menu	Character displaying	Function description	Second level menu displaying character	Second level menu setting description
19	WT-LED	Select standby backlight	OFF	Close standby backlight
			PURPLE	In the standby mode, purple indicator opens
			BLUE	In the standby mode, blue indicator opens
			ORANGE	In the standby mode, orange indicator opens
20	RX-LED	Select receiving backlight	OFF	Close receiving backlight
			PURPLE	In the receiving mode, purple indicator opens
			BLUE	In the receiving mode, blue indicator opens
			ORANGE	In the receiving mode, orange indicator opens
21	TX-LED	Select transmitting backlight	OFF	Close transmitting backlight
			PURPLE	In the transmitting mode, purple indicator opens
			BLUE	In the transmitting mode, blue indicator opens
			ORANGE	In the transmitting mode, orange indicator opens
22	LED-SW	The backlight switch	AUTO	In the standby mode, do not have any operation, the backlight will close automatically
			NO	In the standby mode, backlight is on

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As following picture:(following value is for zreference)

- In the above table, the longest control code has 7 digits, the shortest has 1 digit. The length of control code should within 3-5 digits.
- The control code in the above only can beset by frequency writingprogram provided by our company.
- The opening code, stunning code, shaking code and monitoring code should begin with “#”,
- Master ID code should be set the same with machine ID code.
- If don't want to be controlled, the control code is not need to input.

ANI code :	12345
Master control ID code :	12345
Alarm :	119
Identity display code :	6
Revive :	#77
Stun :	#33
Kill :	#44
Monitor :	#22
Current status :	normal

### Remote stunning(prohibit to be transmitted by controlled party)

Press PTT+#33(stunning code)+12345(master control ID code),then loose PTT.

If the stunning code of controlled party is same as master ID code, the remote stunning function is prohibited.

### Remote shaking code(the controlled party is prohibited to receiving and transmitting)

Press PTT+#44(shaking code)+12345(master ID code), then loose PTT.

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Menu	Character displaying	Function description	Second level menu displaying character	Second level menu setting description
23	BEEP	Warning tone	OFF	Close operation warning tone
			NO	Open operation warning tone
24	RING	Ringing time	OFF	Close calling warning tone
			1~9S	When receiving matched signal,machine sends out voice, when the voice times out, the horn will be opened
25	BCL	Busy lock	OFF	When the channel is occupied,it's allowed to transmit
			ON	When the channel is occupied it's not allowed to transmit
26	TOT	Transmitting time limit	OFF	There is not time limit when continuous transmitting
			30S~600	When pressing PTT key, the transmitting time is the longest
27	TONE	Pilot frequency	1000Hz	When transmitting, press EXIT key to adjust frequency and active relay station
			1450Hz	When transmitting, press EXIT key to adjust frequency and active relay station
			1750Hz	When transmitting, press EXIT key to adjust frequency and active relay station

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If controlled party's shaking code is same as master's ID code, the remote shaking function is prohibited.

### Remote monitoring(monitor the controlled party's monitoring voice)

Press PTT+#22(monitoring code)+12345(master ID code), then loose PTT.

If the controlled party's monitoring code is same as master's ID code, then the controlled party will transmit automatically and start monitoring function.(monitoring time is 7 seconds)

### Remote reliving stunning and

Press PTT+#77(opening code)+12345(master ID code), then loose PTT.

If the controlled party's opening code is same as master's ID code, then the function will be relived.

### Alarm

Press PTT+119(alarming code),then loose PTT.

If the controlled party's alarming code is same the sending one, then the controlled starts alarm.

If adding master's ID code or others in the end of alarm code,then the controlled party will display master's ID code and others after starts alarm,so that the controlled party can know which party starts alarm.

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Menu	Character displaying	Function description	Second level menu displaying character	Second level menu setting description
27	TONE	Pilot frequency	2100Hz	When transmitting, press EXIT key to adjust frequency and active relay station
			50MS	When sending DTMF code auto matically, the interval time between code and code
28	DTM-TM	DTMF transmitting time	100MS	When sending DTMF code auto matically, the interval time between code and code
			150MS	When sending DTMF code auto matically, the interval time between code and code
			200MS	When sending DTMF code auto matically, the interval time between code and code
29	SQL	SQL level	0~9	0 is to open SQL ,the SQL can be opened when the 1~9 value bigger,and signal strength is bigger
			30	RPT
31	DTMF	Dual tone multiple frequency code	8sets	Send out these codes when need

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### Specification

Working frequency scope	A model:VHF1:136.000MHz – 174.000MHz B model:VHF2:220.000MHz – 250.000MHz C model:UHF1:350.000MHz – 390.000MHz D model:UHF2:400.000MHz – 470.000MHz	
System	F3E (FM)	
Antenna impedance	50 Ω	
Frequency stability	±2.5ppm @ -10°C ~ +60°C	
Working environment temperature	-20°C ~ +60°C (-4° F ~ +140° F)	
Input voltage	Direct current 13.8V (±15%) , negative grounding	
Output power	High power: ≤10W; middle power: ≤6W; low power: ≤3W	
Max. Frequency deviation	±5KHz	
Noise radiation	≤-60dB	
Flexibility	≤0.2uV (12dB SINAD)	
Max. Audio output	2W @ 8 Ω 5% distortion	
Working current	Receive	0.3A (SQL)
	Transmit	5A(Max.)
Dimension	105 X 30 X 106mm (width X hight X depth not including the outparts)	
Weight	about 0.5 kg	

### Declaration

This manual has been sought during the preparation of accurate and complete, but for the errors and omissions that may appear on the text, the company is not responsible. The company has right to change product's design and specifications without prior notice.

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Menu	Character displaying	Function description	Second level menu displaying character	Second level menu setting description
32	ANI_ID	Individual code		Its to observe machine's setting (only can be written by frequency writing program)
			33	RESET

### Selected calling team calling and group calling

This machine equipped with function of sending and editing personal code as well as DTMF decoding. To achieve selected calling and group calling without using other equipment.

Note: When using any other radio in the group, should edit different individual code.

Following parameters should be set when using this function:

- Set horn opening method(function menu no.4) isQT+ANI (CTCSS+individual code).
- Set ringing time(function menu no.24).

### Group calling function

Press[PTT]key to transmit, input[\*]key from keyboard.(input[\*] digits is same asmachine's ID code).

For example: If the ID code of called party is [12345], then press [PTT] key to transmit, input five [\*] key from keyboard. All thecalled party who have same digits will have ring.

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### Team calling function

Press [PTT] key to transmit, input[team number]+[\*]key. (input digits is sameas machine's ID code)

For example: if the ID code of called party has [12345],[12789], [23888],then press[PTT] key to transmit, then input[12]+[\*]\*key. All the called party who have [12] in the beginning will have ring, called party who has [23] in the beginning will not have ring.

### Selected calling function

Press [PTT] key to transmit, input the called party's individual code from keyboard.

For example: if the called party's ID code has [12345], thenpress [PTT] key to transmit, input[12345]key. All selected radio willhave ring.

### Remote control function

Before using remote control function, the machine should be active, at the same time, should set radio's ID code that is main master code. All the setting only can be done by frequency writing program.

- Open frequency writing program.
- Vehicle transceiver connects with PC through frequency writing cable. (8 needle crystal head insert to hand microp one port)

The precondition of using remote controlfunctionis to set IDcode. Different remote control functionshould set different control code.

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