

RL-328CQ

VHF/UHF TRANSCEIVER



INSTRUCTION MANUAL

CE 0678 Ⓢ

RoHS



REXON[®]
What An Excellent Radio!

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Packing List

Please check following table.

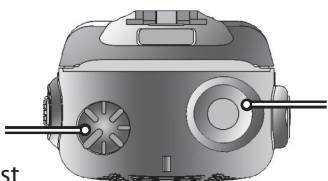
ITEMS	Q'TY
RL-328CQ Radio	1
Antenna (MX type)	1
Battery Pack	1
Rapid Charger	1
Belt Clip	1
Instruction Manual	1

Cautions

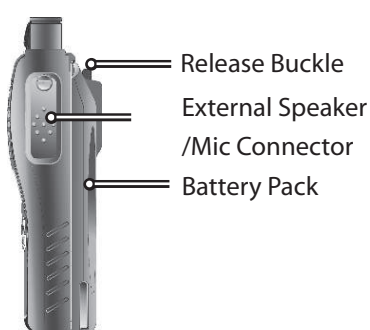
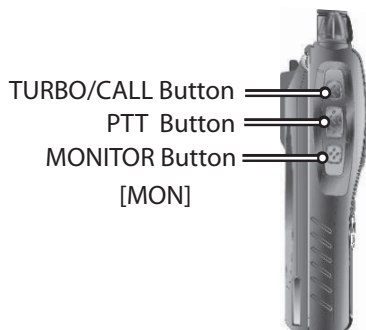
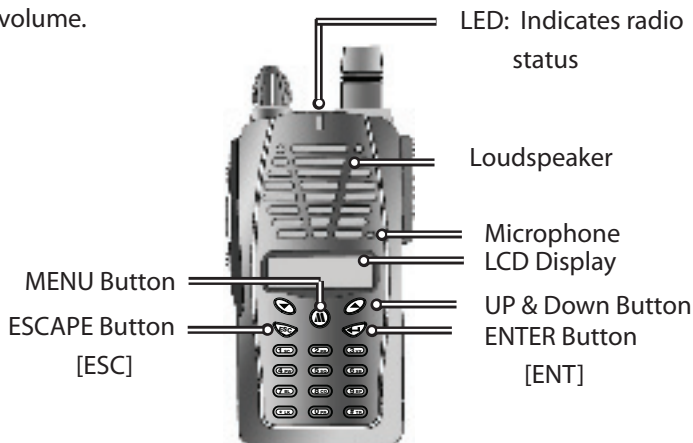
- * **NEVER** transmit without antenna.
- * **USE** DC power supply, take notice of power voltage must be between 6V and 8V to avoid damaging the unit.
- * **PLEASE** keep the radio dry. Rainwater or damp will corrode electronic circuits.
- * **DO NOT** open the unit. Non-expert handling of the unit may damage it.
- * **DO NOT** forget to remove the radio from the charger when the battery is fully-charged.
- * **MAKE SURE** the radio is turned off while charging.
- * **AVOID** storing the radio under the sunshine or in hot areas. High temperature can shorten the life of electronic devices, and warp or melt certain plastics.
- * **AVOID** storing the radio in dusty, dirty areas.
- * Risk of explosion if battery is replaced by an incorrect type.
- * Dispose of used batteries according to the instructions.

Parts Name & Functions

Power/Volume Knob: Rotate it to turn on the transceiver and to adjust the volume.



Antenna Connector: Fit the antenna to this MX Type connector



Fitting & Removing the Battery Pack

To install the battery pack

- 1) Fit the bottom edge of the battery pack into the holes of the transceiver cabinet bottom.
- 2) Push the battery pack down to the transceiver aluminum chassis till the end click.



To remove the battery pack






- 1) Keep pressing the release buckle of the battery pack and lift the battery pack up from the transceiver body. Note it is normal for this buckle to be stiff.

Charging the Battery Pack

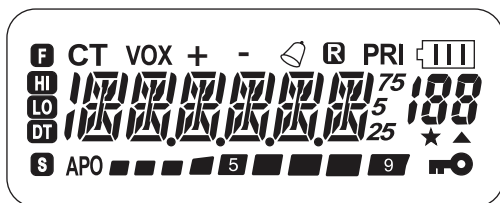


- 1) Connect the jack of AC adaptor into the socket of the charging cradle.
- 2) Plug the AC adaptor into the power outlet.
- 3) Insert the radio into the cradle.
- 4) Charge the radio with standard charger for 10-12 hours; with rapid charger for 2 hours

CAUTION

-  Do not dispose of fire
-  Do not short circuit
-  To be charged only with specified charger

Symbols Description



<input type="checkbox"/>		Indicates battery condition.
<input type="checkbox"/>	+	Dispersion to hyper received frequency
<input type="checkbox"/>	—	Dispersion to under received frequency
<input type="checkbox"/>		Indicates frequency scanning
<input type="checkbox"/>		Indicates when the keypad has been locked
<input type="checkbox"/>		Indicates Digital Coded Squelch (DCS)
<input type="checkbox"/>	CT	Indicates Continuous Tone Coded Squelched System (CTCSS)
<input type="checkbox"/>	VOX	Indicates VOX is activated
<input type="checkbox"/>		Indicates bell call is activated
<input type="checkbox"/>		Indicates reverse frequency
<input type="checkbox"/>	PRI	Indicates the PRiority channel (Dealer Programmable)
<input type="checkbox"/>		Indicates the strength of TX or RX signal
<input type="checkbox"/>		Displays VFO or channel numbers
<input type="checkbox"/>	188	Indicates VFO with channel numbers
<input type="checkbox"/>	★	Indicates the channel with scanning
<input type="checkbox"/>	▲	Indicates squelch is activated

Basic Operation

Turn the radio ON & OFF

1) Rotate the PWR/VOL knob clockwise till the radio is turned on. The radio gets started to auto test for two seconds. During auto testing, all icons will appear on LCD.

2) After auto testing is done, LCD will show channel number and what functions have been activated by your dealer.

3) Rotate the PWR/VOL knob clockwise to increase its volume or counter clockwise to reduce its volume.

4) To turn the radio off, rotate the PWR/VOL knob counter clockwise until the end click.

Monitor

Press the “MON” button on the side of the radio to open the squelch. This allows you to override the squelch and the CTCSS or DCS tones. It is useful to monitor the channel before you transmit and ensure there is no one using the channel when you have CTCSS or DCS tones programmed.

Transmitting

Before transmitting, you can monitor the channel you are using to ensure it is not busy. Keep pressing “PTT” button and start talking at approximately 2 inches from the MIC jack. During transmitting, the LED on the top of the radio will glow red. Release “PTT” button when you have finished talking.

Channel Selection

In channel mode, pressing the ▲ button to increase the channel number or the ▼ button to decrease it. The other way, pressing channel number goes to desired channel by alphanumeric keypad.

Emergency Alarm

Press and hold “CALL” and “MON” button assigned to make an emergency alarm.

Turbo /Call Function

Turbo




Push “Turbo” button would allow you to have high power TX at 6.5W immediately for VHF, and 5W for UHF.

HIGH POWER OR CALL FUNCTION MAY BE PROGRAMED BY YOUR DEALER.




CALL

Push the “CALL” button for seconds to call your partner. “☞” will appear on LCD of recipient.




Keypad Lock


In Channel/Frequency mode, press and hold  button for seconds, the keypad will be locked. “” will appear on LCD. Press and hold  button for seconds again to unlock the keypad.

Setting Reverse Frequency Function

In Channel/Frequency mode, press and hold  button for seconds till “” appears on LCD. To disarm, press  for seconds again. When reverse function is activated, the transmitting frequency and receiving frequency is reversed.





Scan Function



In Channel/Frequency mode, press  button and  button, press  button to begin scanning, you will see the channel numbers cycling continuously. Whenever any activity is detected, the “SCAN” mode will stop and resume after few seconds. If your radio has scanned a channel

on which there is a party you want to talk to, you can directly communicate with the party by pressing the PTT button. To stop scanning, press the  button again.

Priority Channel Function


Priority scan allows you to select a channel that will be monitored more often than the others while scanning. "PRI" is flashing when priority scan is activated.

In Frequency mode, press  button and  button, press  button to begin scanning, you will see the frequency range cycling continuously within 1MHz. Whenever any activity is detected, the "SCAN" mode will stop and resume after few seconds unless you press "PTT" button or  button to end up scanning.



In Channel mode, press  button and  button, if there is "★" symbol showed on the LCD that means the channel has scanning function .

You will see the radio scanning like the following :

CH1-->CH2-->CH1-->CH3-->CH1-->CH5

Whenever any activity is detected, the "SCAN" mode will stop and resume after few seconds unless you press "PTT" button or  button to end up scanning. YOUR DEALER CAN PROGRAM A PRIORITY CHANNEL AND SCANNING CHANNEL THROUGH PC.

Scan Type Selection

In Channel/Frequency mode, press  button and press Up/Down button till "SCANS? 13" appears, press  button to edit, press Up/Down button to select TO/CO/SE.


TO: Time-Operated Scan-> After radio is locked in a busy channel for a period, the radio will begin scanning other channels.

CO: Carrier-Operated Scan-> Radio will be locked in a busy channel till there isn't any carrier. Meanwhile, the radio will begin scanning other



channels.

SE: Search Scan -> Radio will be locked in a busy channel at all time till you press Up/Down button.




Channel /VFO Mode Selection

Press and hold  button, the radio can switch between channel and frequency mode. YOUR DEALER CAN LIMIT CHANNEL MODE ONLY THROUGH PC PROGRAMMING SOFTWARE.

VFO Mode With Channel Number

In Frequency mode, press and hold  button, the radio can switch between frequency mode and frequency mode with channel number. Press  button to return frequency mode.

DTMF Dial String

In Channel/Frequency, when PTT button is pressed, type those number 0-9, * and # on keypad,  button for A;  button for B;  button for C; CALL button for D, Those strings will appear on LCD of receipt.



BCLO & BTLO


BCLO (Busy Channel Lock-Out), is to disable the transmission when RX signal is received.

BTLO (Busy Tone Lock-Out), is to disable the transmission when RX signal with same tone is received. YOUR DEALER CAN PROGRAM THIS PARAMETERS THROUGH PC.




Store/Delete a channel

Store a channel




In Channel/Frequency mode, select desired frequency or any other items like CTCSS, DCS. Press  button, then press  button. After

the channel number you wish to store is blinking, press Up/Down button or input keypad numbers to store channel number. Press  button to confirm and exit.




Delete a channel

In Channel/Frequency mode and then turn off radio, Hold down  button and turn on the radio. "DEL?" and stored channel will display on LCD. Press Up/Down button to select or input keypad numbers which need to be deleted, press  button till "YES?" appears, and press  button to delete the channel.

Delete all setting of frequency mode

Hold down  button and turn on power till "RESET?" appears on LCD, press  button till "VFO?" is displayed. Press  button to confirm and delete all setting of frequency mode.



Delete all setting

Hold down  button and turn on power till "RESET?" is displayed, press  button till "VFO?" is displayed. Press Up/Down button to select "FULL?". Press  button to confirm and exit.




Notice: If "delete all setting" is done, all channel tables will be erased.

Operation

Menu operation




In any menu mode, press Up/Down button to select and press  button to confirm or press  button to exit.

VOX Sensitivity Level




In Channel / Frequency mode, if you want to open VOX, press  button and  button, then press  button till display "VOX OFF", input the number with keypad (0-9) or press Up/Down button to select the sensitivity level; 0 means VOX canceling; 1 means the most sensitive (for quiet environment); 9 means the least (for noisy environment).

"VOX OFF" is default.

Transmit Power Setting

In Channel / Frequency mode, hold down  button and  button, then press  button till "POW L" appears, which means Low Power. Press Up/Down button till "POW H" appears, it means high power and its output power would be double of low power. YOU DEALER CAN PROGRAM TX POWER AT CHANNEL MODE THROUGH PC PROGRAMMING SOFTWARE.

Squelch Level




In Channel / Frequency mode, hold down  button and  button, then press  button, so that "SQL 5" appears. Input the number with keypad (0-9) or press Up/Down button to select squelch level; 0 means squelch canceling; 9 means tight squelch.

“SQL 5” is set by default. Setting the radio to the tight squelch level, you can avoid unwanted signals or noise, but you may not receive a weak signal. YOU DEALER CAN PROGRAM SQUELCH LEVEL AT CHANNEL MODE THROUGH PC PROGRAMMING SOFTWARE.




Backlight Setting

To turn backlight on, hold down  button and  button, then press  button, so that “ON” appears, press Up/Down button to select from ON/OFF.




Display Color Setting

Hold down  button and  button, then press  button, so that “LIGHT 2” appears, press Up/Down button to select one color. There are three display colors, light 1 is purple; light 2 is orange and light 3 is blue.

Beep Setting


To turn beep on, hold down  button and  button, then press  button, so that “ON” displays. To close beep, press Up/Down button till “OFF” appears.

ANI Setting

ANI(Automatic Numbering Identification), to show caller ID on the display while the caller push PTT switch, hold down  button and  button, then press  button, so that “ON” appears. To close ANI, please press Up/Down button till “OFF” appears. ANI ID CAN BE SET BY PC PROGRAMMING SOFTWARE.



+/- Potential Difference.

In Frequency mode, press  button and then press  button,



press  button to go in to edit , press Up/Down button to select S-D O (same), S-D + (plus), S-S – (minus)

TOT (Time-Out Timer)



TOT is the function that prevents from locking up a repeater or frequency by prolonged keying of PTT.

The time-out timer limits the amount of time you have to transmit your message. When you reach the time limit , your transmission will be cut off. Press  button and then press Up/Down button till “TOT ? 12” appears, press  button to edit, press Up/Down to set timer.




Beat Frequency Setting

This function is used to determine the difference (potential difference) between sending frequency and receiving frequency. Press  button and Up/Down button till “DIFFR?” appears. Press  button and input needed frequency, range from 00.000 to 70.995MHz.

Frequency Step Setting

Press  button and then press Up/Down button till “STEP?” appears, press  button and press Up/Down button to select frequency stepping from 5K, 10K, 6.25K, 12.5K, 25K.

CTCSS and DCS Setting

In Frequency mode, press  button, then press  and  button, press Up/Down button to select desired CTCSS or DCS.



“DT” shows on LCD which means the channel has DCS code.

“CT” shows on LCD which means the channel has CTCSS code.



(Press  button to switch CTCSS and DCS)

CTCSS/DCS CAN BE PROGRAMMED AT CHANNEL MODE BY PC PROGRAMMING SOFTWARE.





Operation Voice Setting

Press  button and then press Up/Down button till "VOICE? 14" appears, press  button to edit, press Up/Down to select open or close voice. YOUR DEALER CAN PROGRAM THE VOICE IN ENGLISH OR CHINESE THROUGH PC SOFTWARE.

Channel Spacing Selection

Press  button and then press Up/Down button till "N/W? 21" appears on LCD, press  button to edit, press Up/Down to select WIDE (25KHz) or NARROW (12.5KHz). CHANNEL SPACING CAN BE PROGRAMMED AT CHANNEL MODE BY PC PROGRAMMING SOFTWARE.




Quick index of menu

In Channel/VFO mode, press  button to go in to the menu. Press Up/Down button to select, press  button to enter the mode. Press Up/Down button to select parameters, press  button to confirm or press  button to exit. "Both" mode is available in VFO & Channel mode.

Menu List	Function description	Parameters	Mode
SCAN ? 01	Scan entire channels		Both
PRI ? 02	Priority channel scan		Both
VOX ? 03	Set VOX level	1~9 & OFF	Both
POW? 04	Set transmitting power	H/L	Both
SQL? 05	Set squelch level	0~9	Both
LED? 07	Set LED	ON/OFF/AUTO	Both
LIGHT ? 08	Set display color	(1)Purple (2)Orange (3)Blue	Both
BEEP ? 09	Set keypad beep	ON/OFF	Both

ANI ? 10	Turn ANI	ON/OFF	Both
KEYBO? 11	Switch to	Manual / Auto	Both
TOT ? 12	Set time out timer	OFF~270 Sec	Both
SCRMS? 13	Set scan type	TO/CO/SE	Both
VOICE? 14	Set voice notice	ON/OFF	Both
DIFFR? 15	Set potential frequency	0~70.995 MHz	VFO
NAME? 15	Channel name tag	ON/OFF	CH
C-CDC? 16	Set CTCSS frequency	Ref page 17	VFO
R-CDC? 17	Set receiving code	Ref page 17	VFO
T-CDE? 18	Set transmitting code	Ref page 17	VFO
S-D ? 19	Set potential difference	+/-/0	VFO
STEP ? 20	Set frequency step	5/10/25 KHz 6.25/12.5 KHz	VFO
N/W ? 21	Set channel spacing	WIDE/NARROW	VFO

Self-Programming

Press and hold MON+  buttons by turn on the radio, "SELF" will appear on LCD, press  button to start editing in accord with following step to "self-programming" per channel setting. Press  button the next function and press Up/Down button to select parameters.

Lists	Function description	Parameters
CH-001 1	Channel numbers	1~128
..... 2	Receiving frequency	Unit: MHz
67.0 3	Receiving frequency code	Ref page 17
146.000 4	Transmitting frequency	Unit: MHz
67.0 5	Transmitting frequency code	Ref page 17
OFF 6	Busy channel lockedout	OFF/Carrier TCSS(DCS)
Add 7	Add/Del priority channel scan	Add/Del
H 8	Output power	H / L
N.W 9	Channel spacing	N / W

Press **#TR** button
to next word .
Press **ESC** button
to previous word.

CTCSS & DCS Code

CTCSS CODE

67.0	85.4	107.2	136.5	165.5	186.2	210.7	254.1	
69.3	88.5	110.9	141.3	167.9	189.9	218.1		
71.9	91.5	114.8	146.2	171.3	192.8	225.7		
74.4	94.8	118.8	151.4	173.8	196.6	229.1		
77.0	97.4	123.0	156.7	177.3	199.5	233.6		
79.7	100.0	127.3	159.8	179.9	203.5	241.8		
82.5	103.5	131.8	162.2	183.5	206.5	250.3		

DCS CODE

023	065	132	205	255	331	413	465	612	723
025	071	134	212	261	332	423	466	624	731
026	072	143	223	263	343	431	503	627	732
031	073	145	225	265	346	432	506	631	734
032	074	152	226	266	351	445	516	632	743
036	114	155	243	271	356	446	523	645	754
043	115	156	244	274	364	452	526	654	
047	116	162	245	306	365	454	532	662	
051	122	165	246	311	371	455	546	664	
053	125	172	251	315	411	462	565	703	
054	131	174	252	325	412	464	606	712	

Technical Specifications

GENERAL	
Frequency range (MHz)	136-174MHz
	400-470MHz
Number of Channels	128
Channel Spacing	12.5kHz /25kHz
Mode of Operation	Simplex or Semi-duplex
Modulation Mode	F3E (FM)
Supply Voltage	7.2V DC Nominal
Current Consumption	Receiver Standby 15mA
	Transmit: ≤ 1.4 Amps
Temperature Range	-20°C to +45°C
Frequency Stability	± 2.5ppm
Dimensions (mm)	W 124.5 x L 55 X H 30 / 145 (Knob) x 59 (PTT) x 42 (SPK)
Weight	350 grams (+ Antenna & Belt clip 400g)
Approval Specifications	EN 301 783
	EN 300 684
	IEC 60950, MIL STD 810/C/D/E/F , IP54
TRANSMITTER	
RF Power Output	≤ 5W Watts Software Adjustable
Maximum Frequency Deviation	≤ 5KHz
Adjacent Channel Power	≥ 65dB
Audio Distortion	≤ 3%
FM Hum/Noise	≥ 35dB @12.5KHz /40dB @ 25kHz
Spurious Radiation	≤ 7.5uW
Occupied Bandwidth	≤16KHz
Modulation Character	+3dB ~ -3dB
RECEIVER	
Sensitivity	≤ 0.20uV @12dB SINAD
Adjacent Channel Selectivity	≥ 60dB
Spurious Response Rejection	≥ 60dB
Inter-modulation Response Rejection	≥ 60dB
Blocking	≥ 85dB
Audio Distortion	≤ 3%
Audio Response	+2dB ~ -10dB