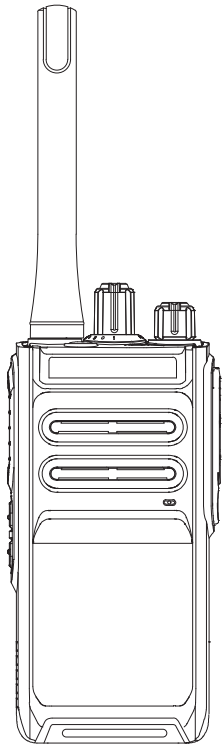


DIGITAL TWO WAY RADIO

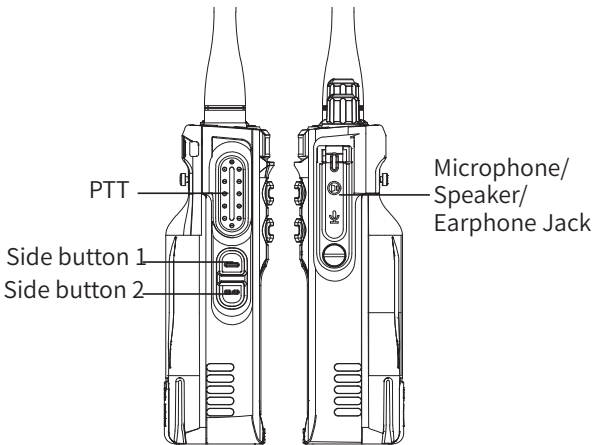
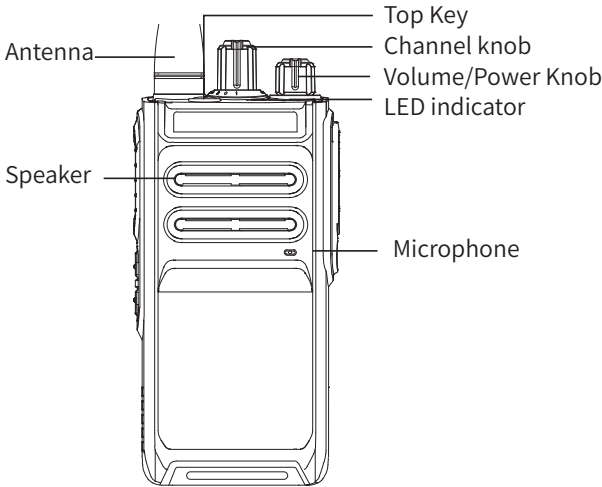


M4EX

Lisheng Communications Co., Ltd.



About the radio



Buttons definition

- ◆ Antenna
- ◆ Speaker: to receive voice
- ◆ PTT: press to transmit, release to receive
- ◆ Top Key & Side button 1 & Side button 2 are programmable keys, users could setup its functions through software.
- ◆ Channel knob: rotate the knob to select the channel
- ◆ Volume/Power knob: Rotate counterclockwise to turn on the radio and increase the volume, and rotate clockwise to adjust the volume.
- ◆ Microphone: use to collect voice
- ◆ Microphone/Speaker/Earphone jack:
 - > Connect program cable here to program radio;
 - > Or connect earpiece or hanger microphone from here

Programmable Functions

Users can setup cooresponding functions through program software which you may need to ask local dealer, short press or long press the buttons to active the functions.

1. None
2. Scan ON/OFF, to enable or disable scanning.
3. VOX ON/OFF, to enable or disable voice control.
4. Talkaround, to enable or disable the talkaround mode.
5. High/Low Power, to switch over the transmit power level between the high and low power.
6. One Touch Call 1
7. One Touch Call 2
8. One Touch Call 3
9. One Touch Call 4
10. One Touch Call 5

To initiate a group call, All call, and Private call, and supports to send Call Alert, Radio Check, Radio Kill, Radio Active and Remote Monitor when on Private call mode.

Status Indicators

The radio indicates its operational status in the following ways:

- ◆ LED indicators
- ◆ Prompt tones

LED indicators

The LED indicators show the operational status of the radio.

- Red on: The radio is transmitting signals, and sending encrypting calls or data.
- Green on: The radio is powering on, receiving signals or and encrypting calls or data.
- Flashing jade Green: The radio is scanning.

Prompt Tones

The prompt tones provide voice prompts of the device status or data reception responses. You can enable or disable the related prompt tones on the programming software.

- Call Start of Digital: A Beep can be heard when the PTT key is pressed.
- Voice End of Digital: A Beep can be heard when the voice is end.
- Call End of Digital: A Beep can be heard when the PTT key is released.
- Call Start of Analog: A Beep can be heard when the PTT key is pressed.
- Voice End of Analog: A Beep can be heard when the voice is end.
- Low-battery alarm tone: Repeated tones can be heard when the battery voltage is low. You can set the duration on the programming software.

Advanced Functions

The radio provides the following advanced functions:

- ◆ DMO dual-time slot
- ◆ Scanning list
- ◆ Scanning
- ◆ VOX
- ◆ Talkaround
- ◆ Remote Monitor
- ◆ Remote Kill and Activate

DMO Dual-Time slot

In a DMO dual-time slot communication, two calls can be made onthe same frequency, making the communication efficiency double and saving the cost for users for frequency request and use. In addition, dual-time slot communication can be ensure smooth and real time communication even in the peak time.

Scanning List

You can create a scanning list and allocate it to a single channel ora call group. Your radio can check whether there are voice activities on the current channel or in the current call group by cyclically scanning the channels and call groups in the list. Your radio can support up to 10 scanning list and each list consists of up to 16 members.

Scanning

When you enable scanning, your radio check whether there are voice activities on the current channel by cyclically scanning the prep-rogrammed scanning list.

The LED indicator flashes jade green.

Automatic scanning: the radio starts to scan automatically after you select an active channel or call group with automatic-scanning enabled

Starting and Stopping Scanning

Procedure:

1. Start or stop scanning by pressing the pre-programmed scanning key or selecting a channel with a pre-programmed scanning list with the channel selection knob.
2. When scanning is started, the LED indicator flashes jade green. When scanning is stopped, the LED indicator is off.

Transmitting a Response During Scanning

During scanning, your radio stays on the active channel or in the active call group detected. The duration when the radio stays on the channel is called the pre-programmed time limit of the “Hold time”.

Procedure:

- 1.During the hold time, press the PTT key and talk to the microphone after the LED indicator is red on.
- 2.Release the PTT key to receive the call.If you do not send a response, the radio starts to scan other channels or call groups.

Setting a Power Level

You can set the power level of each channel to low or high.

A high power level is used for the communication between the radio and a remote portable radio. A low power level is used for the communication between the radio and a near portable radio.

Procedure:

- 1.Press the pre-programmed power level key.
- 2.If the radio beeps once, it indicates that high power is transmitted.If the radio beeps twice, it indicates that low power is transmitted.

Enabling or Disabling the VOX Voice Control Function

VOX allows you to initiate a hand-free voice call without pressing PTT key. Once the microphone detects a voice signal, including VOX earphone or other voice accessories, the radio will automaticly transmit the signals in the time period.

Procedure:

- 1.Press the programmed VOX key to enable or disable the VOX function
2. Talk to the microphone clearly.

Talkaround

If the forwarder does not work or if your radio is beyond the operating scope of the forwarder but within the coverage of other portable radios, you can still use your radio for communication.

This is called "Talkaround"

Procedure:

Press the programmed Repeater/Talkaround key to switch over between the Talkaround and Repeater mode.

Remote Monitor

This function enables remote listening of the radio.

Procedure:

- 1.You should program the side key as One Touch Call feature, and setup the Contacts who you want to monitor via. software and Choose Feature type as "Remote Monitor"
2. Press the programmed One Touch Call key to monitor the pre-set channel.

Remote Kill and Activate

This function enables remote kill and activate of radio.

Procedure:

- 1.You should program the side key as One Touch Call feature, and setup the Contacts who you want to Kill or Activate via. software and set up the Feature type as "Radio Kill / Activate"
2. Press the programmed One Touch Call key to Kill or Activate the pre-setchannel.

Technical Specification

General	
Frequency Range	400～470MHz
Channel	199
Zone	2 Zones
Spacing	12.5kHz/25kHz
Frequency Stability	+/- 1.0ppm
Work Voltage	7.4V DC
Standby	About 117h
Work Temperature	-25℃～+55℃
Antenna Impedance	50Ω
Dimension	133.5*61.7*40mm
Weight	About 284g
Waterproof Level	IP68
Output Level	High power: 4W Low power: 1W

Transmitter	
FM Noise	—40dB@12.5kHz
Spurious Emissions	-36dBm@<1GHz, -30dBm@>1GHz
Adjacent Channel Power	-60dB@12.5kHz
FM Modulation	12.5KHz:11K0F3E
4FSK Digital Modulation	12.5KHz(data only):7K60FXD 12.5KHz(data + voice):7K60FXE
Modulation Limitation	2.5KHz@12.5KHz
Idle Slot Power	-57dB
Rated Audio Distortion	≤3%
Vocoder	AMBE + 2™

Receiver	
Analog Sensitivity	0.22uV/-120dBm(20 dB SINAD) 0.18uV/-122dBm(typical)
Digital Sensitivity	0.25uV/-119dBm (BER 5%) 0.4uV/-115dBm (BER 1%)
Inter-modulation	TIA603C: 60dB : 60dB
Adjacent Channel Selectivity	TIA603C: 60dB@12.5KHz ETSI: 60dB@12.5KHz
Co-channel Suppression	12dB@12.5kHz
Spurious Response Suppression	TIA603C:65dB; ETSI:65dB
Spurious Emissions	—57dBm@ < 1GHz, —47dBm @> 1GHz
Block	84dB
Rated Audio Power	1W/0.35A
额Rated Audio Distortion	≤3%

Notice to user

FCC RF Radiation Exposure Statement:

-This radio is designed for and classified as "Occupational/ Controlled Use Only", meaning it must be used only during the course of employment by individuals aware of the hazards, and the ways to minimize such hazards; NOT intended for use in an General population/uncontrolled environment.
-DO NOT operate the radio without a proper antenna attached, as this may damage the radio and may also cause you to exceed RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or an antenna specifically authorized by the manufacturer for use with this radio.
-DO NOT transmit for more than 50% of total radio use time, more than 50% of the time can cause RF exposure compliance requirements to be exceeded.
-This transmitter may operate with the antenna(s) documented in this filing in Push-to-Talk and body-worn configurations. RF exposure compliance is limited to the specific belt-clip and accessory configurations as documented in this filing and the separation distance between user and the device or its antenna shall be at least 2.5 cm.

Maximum Reported SAR (W/kg @1g)	
RF Exposure Conditions	TNF
Head(Dist.= 25mm)	2.918
Body-worn(Dist.= 0mm)	4.820

RED Caution:

- 1.Frequency: 400-470MHz, High power: 4W, Low power: 1W
- 2.RF exposure information: The device complies with RF exposure require when the device used at 25mm form your face and 0mm from the body with the belt-clips.
- 3.Declaration of Conformity.
Manufacturer: LISHENG COMMUNICATIONS CO., LTD.
Address: 5#, ChongXiang St., Econ & Tech. Area, Quanzhou, Fujian, China.
Hereby, LISHENG COMMUNICATIONS CO., LTD. declares that this product is in compliance with essential requirements and other relevant provisions of Directive 2014/53/EU. This product is allowed to be used in all EU member states.
- 4.AC adapter
The adapter shall be installed near the equipment and shall be easily accessible.
- 5.Lithium Battery
Risk of explosion if battery is replaced by an incorrect type, dispose of used battery according to the instructions.

Engineering personnel setting up those frequency ranges whit Customer Programming Software, the mechanism implemented in the product to avoid the end user to managing changes in the definition of operating frequency ranges in order to avoid usage of un-allowed frequency ranges.

The authorized to set up the permitted frequency ranges for marketing in the specific EU country:

Country	Frequency Range(MHz)
Austria(AT)	444.9 - 444.900001, 450 - 456,
	457.33 - 457.330001,
	457.45 - 458.3,460 -470
Belgium(BE)	406.1-430 ,440-470
Bulgaria(BG)	410 -430,440-470
Croatia (HR)	406.1-430 ,440-470
Cyprus (CY)	406.1-430 ,440-470
Czech Republic (CZ)	448 - 451.3 ,457.38 - 461.3 ,467.38 - 470
Denmark(DK)	406.1-430 , 450 - 470
Estonia(EE)	406.1 - 410,412.5 - 420 , 422.5-430 ,440 - 442.5,
Finland(FI)	443 - 450,446 -446.2,450 -453 ,457.575 - 463,467.575 -470
	407.525 - 408.55,410.0125 - 410.8875,417.525 - 417.9,
	419.15 - 419.525,419.55625 - 419.71875,420.0125 - 420.8875,
	426.35 - 427.5,427.525 - 427.9, 429.15 - 429.525,
	429.55625- 429.71875,440.0125 - 440.5875,
	440.60625 - 440.89375,442.775 - 443, 443.025 - 444,
	444.025 - 444.525,444.55 - 444.975,445 - 446,
	447.00625 - 447.29375,447.30625 - 447.70625,
France (FR)	449.025 - 449.525,449.55 - 449.975, 450.325 - 452.475,
	452.525 - 452.975,453.0125 - 453.6625,469.725 - 469.975
	406.1-430,444.5-447 , 451.5-460, 461.5-470
	406.1-430 ,440-470
	406.1-430 ,440-470
	417 - 420,442 - 445,456 - 460, 461.3 - 470
	410 - 430,440 - 455, 456 - 459,460 - 470
	440-443,445-470
	406.1-430,440-450,456 -470
	406.1 - 410 , 413 - 418.6 ,423- 428.6 ,440 - 450 ,
Luxembourg (LU)	450 - 452.9875 ,458.1125 - 462.9875 ,467.4875 - 467.5875
	410-430,440- 470
Malta(MT)	406.1-430 ,440-470
Netherlands(NL)	410 -430,440-470
Poland(PL)	448 - 449.5,457 - 460,467 - 470
Portugal (PT)	148 - 149.9,150.05 - 156.4875 , 156.8375 - 174
Romania(RO)	408 - 410.8,415 - 420.8,425 - 429.8, 440 - 450.55,
	457.5 - 458.2 , 460 - 460.55,467.5 - 468.2
Slovakia(SK)	441.025 - 451.31,455.73 - 461.31,465.73- 470
Slovenia(SI)	406.1-430 ,440-470
Spain(ES)	406.1-430 ,440-470
Sweden(SE)	406.1 -430, 442 - 444,444,5875 - 452.5,
	457.5 - 462.5,467.5 - 470
United Kingdom (UK)	410-43040-470