VMUKSAN TH-9800

VMUKSAN TYT TH-9800 Plus Quad Band Mobile Radio User Manual

Model: TH-9800 | Brand: VMUKSAN

1. Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of your VMUKSAN TYT TH-9800 Plus Quad Band Mobile Radio. The TH-9800 Plus is a versatile amateur transceiver designed for vehicle and base station use, offering quad-band operation across 29 MHz, 50 MHz, 144 MHz, and 430 MHz bands. It features a detachable front panel, cross-band repeater capability, and a user-friendly interface.

Please read this manual thoroughly before operating the device to ensure proper usage and to maximize its performance and longevity.

Image 1.1: VMUKSAN TYT TH-9800 Plus Quad Band Transceiver. This image displays the radio unit with its microphone and highlights key features such as quad-band operation (29/50/144/430 MHz), V/V, U/U, V/U simultaneous receive capability, 50W high transmit output power, built-in V+U cross-band repeater, and detachable remote panel mounting.

2. What's in the Box

Verify that all items listed below are included in your package. If any items are missing or damaged, please contact customer support.

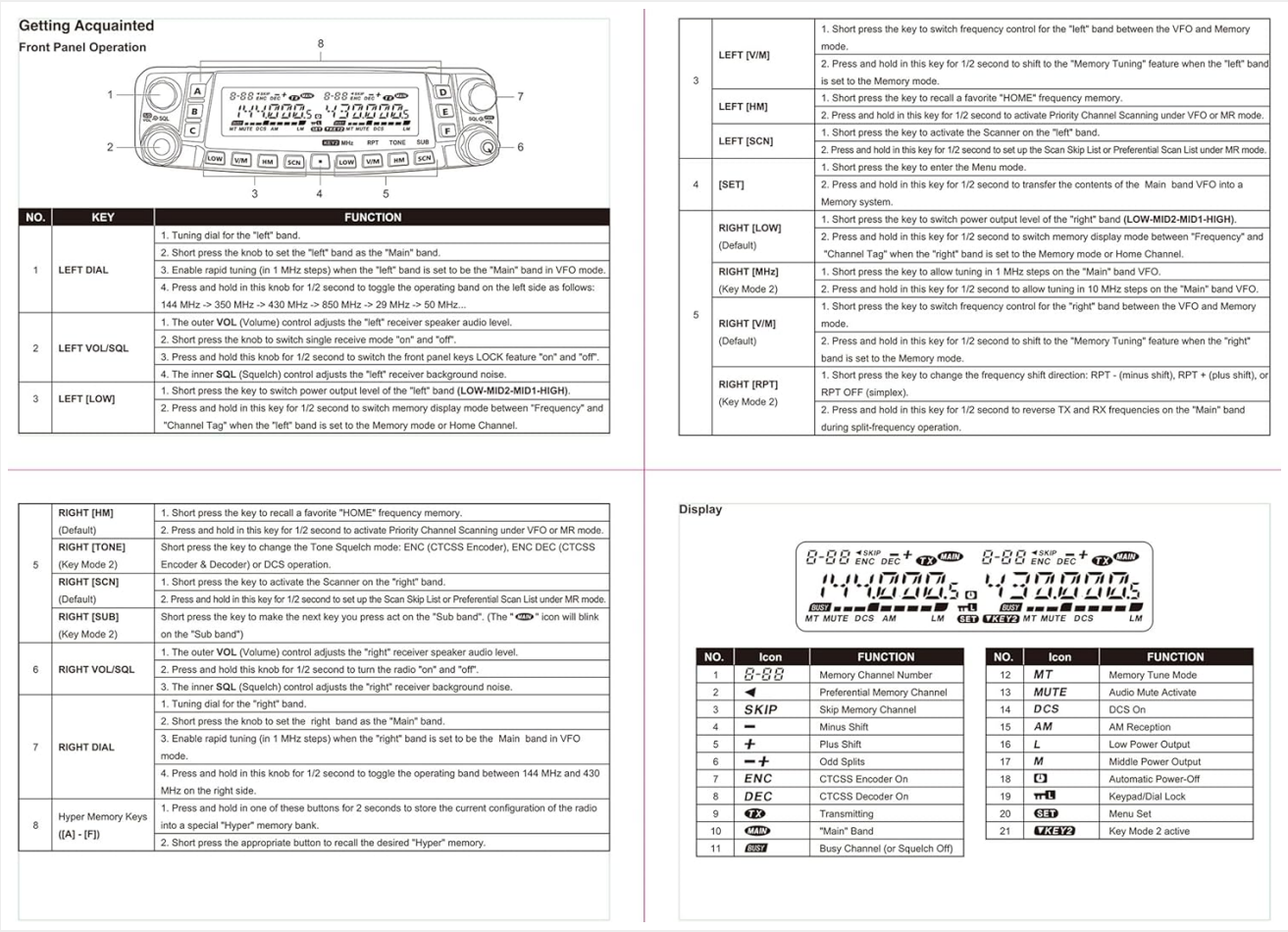
- TYT TH-9800 Plus Mobile Transceiver
- USB Programming Cable
- Keypad DTMF Microphone
- Front Controller Separation Cable
- Front Controller Mounting Bracket
- Radio Body Mounting Bracket
- DC Power Cable with Fuse Holder
- Screw Packs
- Protection Fuses
- User Manual (this document)

Image 2.1: Package Contents. This image displays all components included with the VMUKSAN TYT TH-9800 Plus mobile radio, laid out for easy identification. These include the main transceiver unit, microphone, various cables, mounting brackets, screws, and fuses.

3. Product Overview

The VMUKSAN TYT TH-9800 Plus features a robust design with a clear LCD display and intuitive controls. The radio body and front panel can be separated for flexible installation options.

3.1 Front Panel



NO.	KEY	FUNCTION
1	LEFT DIAL	1. Tuning dial for the "left" band.
		2. Short press the knob to set the "left" band as the "Main" band.
		3. Enable rapid tuning (in 1 MHz steps) when the "left" band is set to be the "Main" band in VFO mode.
		4. Press and hold in this knob for 1/2 second to toggle the operating band on the left side as follows: 144 MHz -> 350 MHz -> 430 MHz -> 850 MHz -> 29 MHz -> 50 MHz...
2	LEFT VOL/SQL	1. The outer **VOL** (Volume) control adjusts the "left" receiver speaker audio level.
		2. Short press the knob to switch single receive mode "on" and "off".
		3. Press and hold this knob for 1/2 second to switch the front panel keys LOCK feature "on" and "off".
		4. The inner **SQL** (Squelch) control adjusts the "left" receiver background noise.
3	LEFT [LOW]	1. Short press the key to switch power output level of the "left" band **(LOW-MID2-MID1-HIGH)**.
		2. Press and hold in this key for 1/2 second to switch memory display mode between "Frequency" and "Channel Tag" when the "left" band is set to the Memory mode or Home Channel.
3	LEFT [V/M]	1. Short press the key to switch frequency control for the "left" band between the VFO and Memory mode.
		2. Press and hold in this key for 1/2 second to shift to the "Memory Tuning" feature when the "left" band is set to the Memory mode.
	LEFT [HM]	1. Short press the key to recall a favorite "HOME" frequency memory.
		2. Press and hold in this key for 1/2 second to activate Priority Channel Scanning under VFO or MR mode.
	LEFT [SCN]	1. Short press the key to activate the Scanner on the "left" band.
		2. Press and hold in this key for 1/2 second to set up the Scan Skip List or Preferential Scan List under MR mode.
4	[SET]	1. Short press the key to enter the Menu mode.
		2. Press and hold in this key for 1/2 second to transfer the contents of the Main band VFO into a Memory system.
5	RIGHT [LOW] (Default)	1. Short press the key to switch power output level of the "right" band **(LOW-MID2-MID1-HIGH)**.
		2. Press and hold in this key for 1/2 second to switch memory display mode between "Frequency" and "Channel Tag" when the "right" band is set to the Memory mode or Home Channel.
	RIGHT [MHz] (Key Mode 2)	1. Short press the key to allow tuning in 1 MHz steps on the "Main" band VFO.
		2. Press and hold in this key for 1/2 second to allow tuning in 10 MHz steps on the "Main" band VFO.
	RIGHT [V/M] (Default)	1. Short press the key to switch frequency control for the "right" band between the VFO and Memory mode.
		2. Press and hold in this key for 1/2 second to shift to the "Memory Tuning" feature when the "right" band is set to the Memory mode.
	RIGHT [RPT] (Key Mode 2)	1. Short press the key to change the frequency shift direction: RPT - (minus shift), RPT + (plus shift), or RPT OFF (simplex).
		2. Press and hold in this key for 1/2 second to reverse TX and RX frequencies on the "Main" band during split-frequency operation.
5	RIGHT [HM] (Default)	1. Short press the key to recall a favorite "HOME" frequency memory.
		2. Press and hold in this key for 1/2 second to activate Priority Channel Scanning under VFO or MR mode.
	RIGHT [TONE] (Key Mode 2)	Short press the key to change the Tone Squelch mode: ENC (CTCSS Encoder), ENC DEC (CTCSS Encoder & Decoder) or DCS operation.
	RIGHT [SCN] (Default)	1. Short press the key to activate the Scanner on the "right" band.
		2. Press and hold in this key for 1/2 second to set up the Scan Skip List or Preferential Scan List under MR mode.
	RIGHT [SUB] (Key Mode 2)	Short press the key to make the next key you press act on the "Sub band". (The " " icon will blink on the "Sub band")
6	RIGHT VOL/SQL	1. The outer **VOL** (Volume) control adjusts the "right" receiver speaker audio level.
		2. Press and hold this knob for 1/2 second to turn the radio "on" and "off".
		3. The inner **SQL** (Squelch) control adjusts the "right" receiver background noise.
7	RIGHT DIAL	1. Tuning dial for the "right" band.
		2. Short press the knob to set the right band as the "Main" band.
		3. Enable rapid tuning (in 1 MHz steps) when the "right" band is set to be the Main band in VFO mode.
		4. Press and hold in this knob for 1/2 second to toggle the operating band between 144 MHz and 430 MHz on the right side.
8	Hyper Memory Keys ([A] - [F])	1. Press and hold in one of these buttons for 2 seconds to store the current configuration of the radio into a special "Hyper" memory bank.
		2. Short press the appropriate button to recall the desired "Hyper" memory.

NO.	Icon	FUNCTION
1	8-88	Memory Channel Number
2	◀	Preferential Memory Channel
3	SKIP	Skip Memory Channel
4	−	Minus Shift
5	+	Plus Shift
6	−+	Odd Splits
7	ENC	CTCSS Encoder On
8	DEC	CTCSS Decoder On
9	TX	Transmitting
10	MAIN	"Main" Band
11	BUSY	Busy Channel (or Squelch Off)

NO.	Icon	FUNCTION
12	MT	Memory Tune Mode
13	MUTE	Audio Mute Activate
14	DCS	DCS On
15	AM	AM Reception
16	L	Low Power Output
17	M	Middle Power Output
18	A	Automatic Power-Off
19	L	Keypad/Dial Lock
20	SET	Menu Set
21	TKEY2	Key Mode 2 active

Image 3.1: Front Panel Layout and Functions. This diagram illustrates the front panel of the TH-9800 Plus, detailing the location and function of each key and dial. Refer to the table below for detailed descriptions.

The front panel houses the main display, control knobs, and function keys for operating the radio. It can be detached from the main unit for remote mounting. The following table details the functions of the front panel controls:

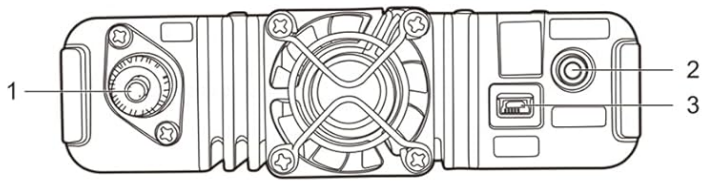
Front Panel Key Functions (Refer to Image 3.1)

No.	Key/Dial	Function
1	LEFT DIAL	Tuning dial for the left band. Press and hold this key for 1/2 second to set the "Main" band. Enable rapid tuning (in 1 MHz steps) when the "left" band is set to be the "Main" band in VFO mode. Press and hold this key for 1/2 second to toggle the operating band on the left side as follows: 144 MHz -> 350 MHz -> 430 MHz -> 850 MHz -> 29 MHz -> 50 MHz...
2	LEFT VOL/SQL	The outer VOL (Volume) control adjusts the "left" receiver speaker audio level. Press and hold this key to switch single receive mode "on" and "off". Press and hold this key for 1/2 second to switch the front panel keys LOCK feature "on" and "off".
3	LEFT LOW/M	Press and hold this key for 1/2 second to switch the memory mode. Press and hold this key for 1/2 second to switch power output level of the "left" band (LOW-MID1-MID2-HIGH).
4	LEFT V/M	Press and hold this key for 1/2 second to switch frequency control for the "left" band between VFO and Memory mode. Press and hold this key for 1/2 second to store the current frequency into the "Memory Tuning" feature when the "left" band is set to the Memory mode.
5	LEFT HM	Press and hold this key for 1/2 second to recall a favorite "HOME" frequency memory. Press and hold this key for 1/2 second to activate Priority Channel Scanning under VFO or MR mode.
6	LEFT SCN	Press and hold this key for 1/2 second to activate the Scanner on the "left" band. Press and hold this key for 1/2 second to set up the Scan Skip List or Preferential Scan List under MR mode.
7	LEFT SUB	Press and hold this key to enter the Menu mode. Press and hold this key for 1/2 second to transfer the contents of the Main band into a Memory system.

No.	Key/Dial	Function
8	RIGHT LOW	Press and hold this key for 1/2 second to switch power output level of the "right" band (LOW-MID1-MID2-HIGH). Press and hold this key for 1/2 second to switch frequency control for the "right" band between "Frequency" and "Channel Tag" when the "right" band is set to the Memory mode or Home Channel.
9	RIGHT V/M	Press and hold this key for 1/2 second to switch frequency control for the "right" band between VFO and Memory mode. Press and hold this key for 1/2 second to store the current frequency into the "Memory Tuning" feature when the "right" band is set to the Memory mode.
10	RIGHT RPT	Press and hold this key to change the frequency shift direction: RPT- (minus shift), RPT+ (plus shift), or RPT OFF (simplex). Press and hold this key for 1/2 second to reverse TX and RX frequencies on the "Main" band during split-frequency operation.
11	RIGHT TONE	Press and hold this key to change the Tone Squelch mode: ENC (CTCSS Encoder), ENC DEC (CTCSS Encoder & Decoder) or DCS operation. Press and hold this key for 1/2 second to activate the Scanner on the "right" band.
12	RIGHT SCN	Press and hold this key for 1/2 second to set up the Scan Skip List or Preferential Scan List under MR mode.
13	RIGHT SUB	Press and hold this key to make the host you press act on the "Sub band". (The "SUB" icon will blink on the "Sub band").
14	RIGHT VOL/SQL	The outer VOL (Volume) control adjusts the "right" receiver speaker audio level. Press and hold this key for 1/2 second to turn the radio "on" and "off".
15	RIGHT DIAL	Tuning dial for the "right" band. Press and hold this key for 1/2 second to set the "Main" band. Enable rapid tuning (in 1 MHz steps) when the "right" band is set to be the Main band in VFO mode. Press and hold this key for 1/2 second to toggle the operating band between 144 MHz and 430 MHz on the right side.
16	Hyper Memory Keys (A) - (F)	Press and hold one of these buttons for 2 seconds to store the current configuration of the radio into a special "Hyper" memory bank. Then press this appropriate button to recall the desired "Hyper" memory.

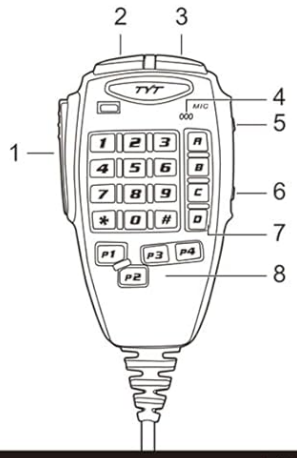
3.2 Rear Panel

Rear Panel



NO.	Port	FUNCTION
1	ANT	Connection for 50Ω antenna.
2	EXT SP	Terminal for optional external speaker.
3	DATA	PC programming data port.

Microphone



NO.	Port	FUNCTION
1	PTT	Press the key to transmit.
2	DWN	Decrease channel number or setting value.
3	UP	Increase channel number or setting value.
4	MIC	Speak here during transmission.
5	LOCK	Locks out the microphone buttons except key 0 - 9 and PTT.
6	LAMP	Illuminates the microphone keypad.
7	Number Key	Input channel number or DTMF dial out etc.
8	Programmable Keys	User-defined functions Keys. Default: **P1:** switch the "Main" band between the left and right display. **P2:** switch the frequency control for the "Main" band between VFO and Memory mode. **P3:** press repeatedly to select the CTCSS or DCS mode on the "Main" band. **P4:** press repeatedly to select TX power output level on the "Main" band.

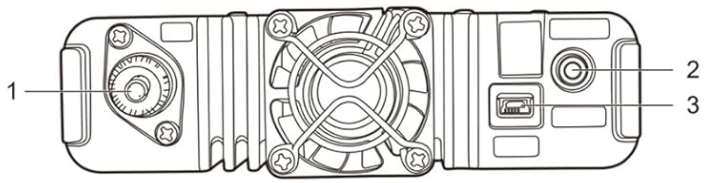
Image 3.2: Rear Panel Layout and Functions. This diagram shows the rear panel of the TH-9800 Plus, indicating the antenna connector, external speaker port, and PC programming data port. Refer to the table below for detailed descriptions.

Rear Panel Port Functions (Refer to Image 3.2)

No.	Port	Function
1	ANT	Connection for 50Ω antenna.
2	EXT SP	Terminal for optional external speaker.
3	DATA	PC programming data port.

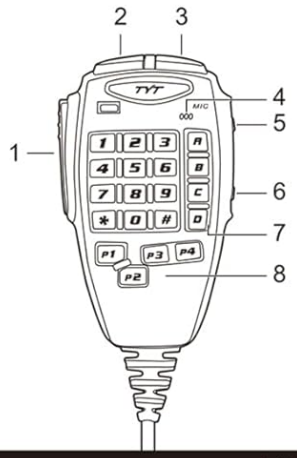
3.3 Microphone

Rear Panel



NO.	Port	FUNCTION
1	ANT	Connection for 50Ω antenna.
2	EXT SP	Terminal for optional external speaker.
3	DATA	PC programming data port.

Microphone



NO.	Port	FUNCTION
1	PTT	Press the key to transmit.
2	DWN	Decrease channel number or setting value.
3	UP	Increase channel number or setting value.
4	MIC	Speak here during transmission.
5	LOCK	Locks out the microphone buttons except key 0 - 9 and PTT.
6	LAMP	Illuminates the microphone keypad.
7	Number Key	Input channel number or DTMF dial out etc.
8	Programmable Keys	User-defined functions Keys. Default: **P1:** switch the "Main" band between the left and right display. **P2:** switch the frequency control for the "Main" band between VFO and Memory mode. **P3:** press repeatedly to select the CTCSS or DCS mode on the "Main" band. **P4:** press repeatedly to select TX power output level on the "Main" band.

Image 3.3: Microphone Layout and Functions. This diagram details the keypad DTMF microphone, showing the Push-To-Talk (PTT) button, up/down keys, numeric keypad, and programmable function keys. Refer to the table below for detailed descriptions.

Microphone Key Functions (Refer to Image 3.3)

No.	Port	Function
1	PTT	Press the key to transmit.
2	DWN	Decrease channel number or setting value.
3	UP	Increase channel number or setting value.
4	MIC	Speak here during transmission.
5	LOCK	Locks out the microphone buttons except key 0 - 9 and PTT.
6	LAMP	Illuminates the microphone keypad.

No.	Port	Function
7	Number Key	Input channel number or DTMF dial out etc.
8	Programmable Keys	User-defined functions Keys. Default: **P1:** switch the "Main" band between the left and right display. **P2:** switch the frequency control for the "Main" band between VFO and Memory mode. **P3:** press repeatedly to select the CTCSS or DCS mode on the "Main" band. **P4:** press repeatedly to select TX power output level on the "Main" band.

3.4 Display Icons

The LCD display shows various icons indicating the radio's status and active functions. Refer to the table below for a description of common display icons:

Display Icon Legend (Refer to Image 3.1)

No.	Icon	Function
1		Memory Channel Number
2	MT	Memory Tune Mode
3	SKIP	Skip Memory Channel
4	+	Plus Shift
5	-	Minus Shift
6	ENC	CTCSS Encoder On
7	DEC	CTCSS Decoder On
8	DCS	DCS On
9	TX	Transmitting
10	MAIN	"Main" Band
11	BUSY	Busy Channel (or Squelch Off)
12	AM	AM Reception
13	L	Low Power Output
14	M	Middle Power Output
15	H	High Power Output
16	AUTO	Automatic Power-Off
17	KEY	Keypad/Dial Lock
18	SET	Menu Set
19	KEY2	Key Mode 2 active
20	VFO	VFO Mode
21	MR	Memory Mode

4. Setup and Installation

Proper installation is crucial for optimal performance and safety. Ensure the radio is installed in a well-ventilated area, away from direct sunlight and excessive heat.

4.1 Mounting the Radio Body

1. Select a secure location in your vehicle or base station that allows for adequate ventilation around the radio's heatsink.
2. Use the provided radio body mounting bracket as a template to mark drilling locations.
3. Drill pilot holes and secure the bracket using the supplied screws.
4. Attach the radio body to the bracket.

4.2 Detachable Front Panel Installation

The front panel can be mounted separately from the main radio unit for convenience.

1. Choose a suitable location for the front panel, ensuring it is easily accessible and visible.
2. Use the front controller mounting bracket to secure the panel.
3. Connect the front panel to the main radio unit using the provided front controller separation cable. Ensure the connection is firm.

Image 4.1: Detachable Front Panel Connection. This diagram illustrates how the front control panel connects to the main radio unit via the separation cable, allowing for flexible mounting options.

4.3 Power Connection

1. Connect the DC power cable to the radio's power input port.
2. Ensure the red wire connects to the positive (+) terminal and the black wire to the negative (-) terminal of your 13.8V DC power source.
3. Install the provided fuses in the fuse holder on the DC power cable.
4. Verify all connections are secure before applying power.

4.4 Antenna Connection

Connect a 50Ω antenna suitable for the desired operating frequencies (29/50/144/430 MHz) to the ANT connector on the rear panel of the radio. Use a high-quality coaxial cable with appropriate connectors.

5. Operating Instructions

This section covers the basic operation of your TH-9800 Plus radio.

5.1 Power On/Off

- To power on the radio, press and hold the **RIGHT VOL/SQL** knob for 1/2 second.
- To power off, repeat the same action.

5.2 Frequency Selection (VFO Mode)

- Turn the **LEFT DIAL** or **RIGHT DIAL** to adjust the frequency.
- Press and hold the respective dial for 1/2 second to set the "Main" band.
- To enable rapid tuning (1 MHz steps), press and hold the respective dial when the band is set to "Main" in VFO mode.
- The radio supports quad-band transmission on 28-29.7 MHz, 50-54 MHz, 144-148 MHz, and 420-450 MHz. Reception covers 26-33 MHz, 47-54 MHz, 108-180 MHz, 320-512 MHz, and 750-950 MHz.

5.3 Memory Channel Operation

The TH-9800 Plus supports 800 memory channels.

- To switch between VFO (Variable Frequency Oscillator) and Memory mode, press and hold the **LEFT V/M** or **RIGHT V/M** key for 1/2 second.
- To store a frequency into memory, set the desired frequency in VFO mode, then press and hold the **LEFT V/M** or **RIGHT V/M** key for 1/2 second. Follow the on-screen prompts to select a memory channel.
- To recall a favorite "HOME" frequency, press and hold the **LEFT HM** key for 1/2 second.
- The radio also features "Hyper Memory Keys" (A-F) for quick storage and recall of specific radio configurations. Press and hold one of these buttons for 2 seconds to store, then press to recall.

5.4 CTCSS/DCS Tone and Code Settings

The radio supports 50 groups of CTCSS tones and 104 groups of DCS codes for selective calling.

- To change the Tone Squelch mode (ENC, ENC DEC, DCS), press and hold the **RIGHT TONE** key for 1/2 second.
- Use the dials to select the desired CTCSS tone or DCS code.

5.5 Cross-Band Repeater and Full Duplex

The TH-9800 Plus includes a built-in V+U cross-band repeater and full duplex capability, allowing simultaneous transmission and reception on different bands.

- Refer to the detailed menu settings in the full user manual for specific activation and configuration of the cross-band repeater function.

5.6 DTMF, 2-Tone, 5-Tone Selective Calling

The radio supports DTMF, 2-Tone, and 5-Tone signaling for selective calling functions.

- Use the keypad on the microphone to input DTMF tones.
- Configuration for 2-Tone and 5-Tone calling is done through the radio's menu system.

6. Programming

While many functions can be programmed directly from the front panel, advanced programming and memory channel management are often easier using a computer and the provided USB programming cable.

- Connect the USB Programming Cable to the DATA port on the rear of the radio and to your computer.
- Install the appropriate programming software (typically available from the manufacturer's website or included on a CD).
- Follow the software instructions to read from, write to, and manage your radio's settings and memory channels.
- **Note:** Programming can be complex for beginners. Refer to online resources such as YouTube tutorials or dedicated amateur radio forums for guidance if needed.

7. Maintenance

To ensure long-term performance and reliability of your TH-9800 Plus, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the radio's exterior. For stubborn dirt, a slightly damp cloth with mild soap can be used, followed by a dry cloth. Avoid abrasive cleaners or solvents.
- **Ventilation:** Ensure the radio's heatsink and ventilation openings are clear of dust and obstructions to prevent overheating.
- **Connections:** Periodically check all cable connections (power, antenna, microphone, separation cable) for tightness and corrosion.
- **Storage:** When not in use for extended periods, store the radio in a dry, cool environment, away from direct sunlight and extreme temperatures.

8. Troubleshooting

If you encounter issues with your TH-9800 Plus, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Radio does not power on.	No power supply; loose power cable; blown fuse.	Check DC power cable connections. Verify power source is active. Inspect fuses and replace if necessary.
No audio or low audio output.	Volume too low; squelch level too high; external speaker disconnected.	Adjust volume knob. Lower squelch level. Check external speaker connection if used.
Cannot transmit or receive.	Incorrect frequency/channel; antenna not connected; antenna SWR too high; CTCSS/DCS mismatch.	Verify frequency and mode. Ensure antenna is securely connected. Check antenna SWR. Confirm CTCSS/DCS settings match the other party.
Display shows "ERROR" or unusual characters.	Internal malfunction; software issue.	Try resetting the radio (refer to full manual for reset procedure). If problem persists, contact customer support.

Problem	Possible Cause	Solution
Difficulty with programming.	Incorrect software; driver issues; cable not recognized.	Ensure correct programming software and USB drivers are installed. Verify cable connection. Consult online resources or customer support.

9. Specifications

Below are the technical specifications for the VMUKSAN TYT TH-9800 Plus Mobile Transceiver:

Feature	Detail
Brand	VMUKSAN
Model Number	TH-9800
Frequency Range (TX)	28-29.7 MHz (10M), 50-54 MHz (6M), 144-148 MHz (2M), 420-450 MHz (70CM)
Frequency Range (RX)	26-33 MHz, 47-54 MHz, 108-180 MHz, 320-512 MHz, 750-950 MHz
Output Power	50W (VHF), 40W (UHF)
Number of Channels	800
Special Features	Quad Band, Cross-Band Repeater, Detachable Front Panel, DTMF, 2-Tone, 5-Tone, CTCSS/DCS
Item Weight	4 pounds
Package Dimensions	11 x 7 x 4 inches
Color	Black
Water Resistance Level	Not Water Resistant
Manufacturer	Quanzhou TYT Electronics Co., Ltd.
FCC ID	PODTH-9800

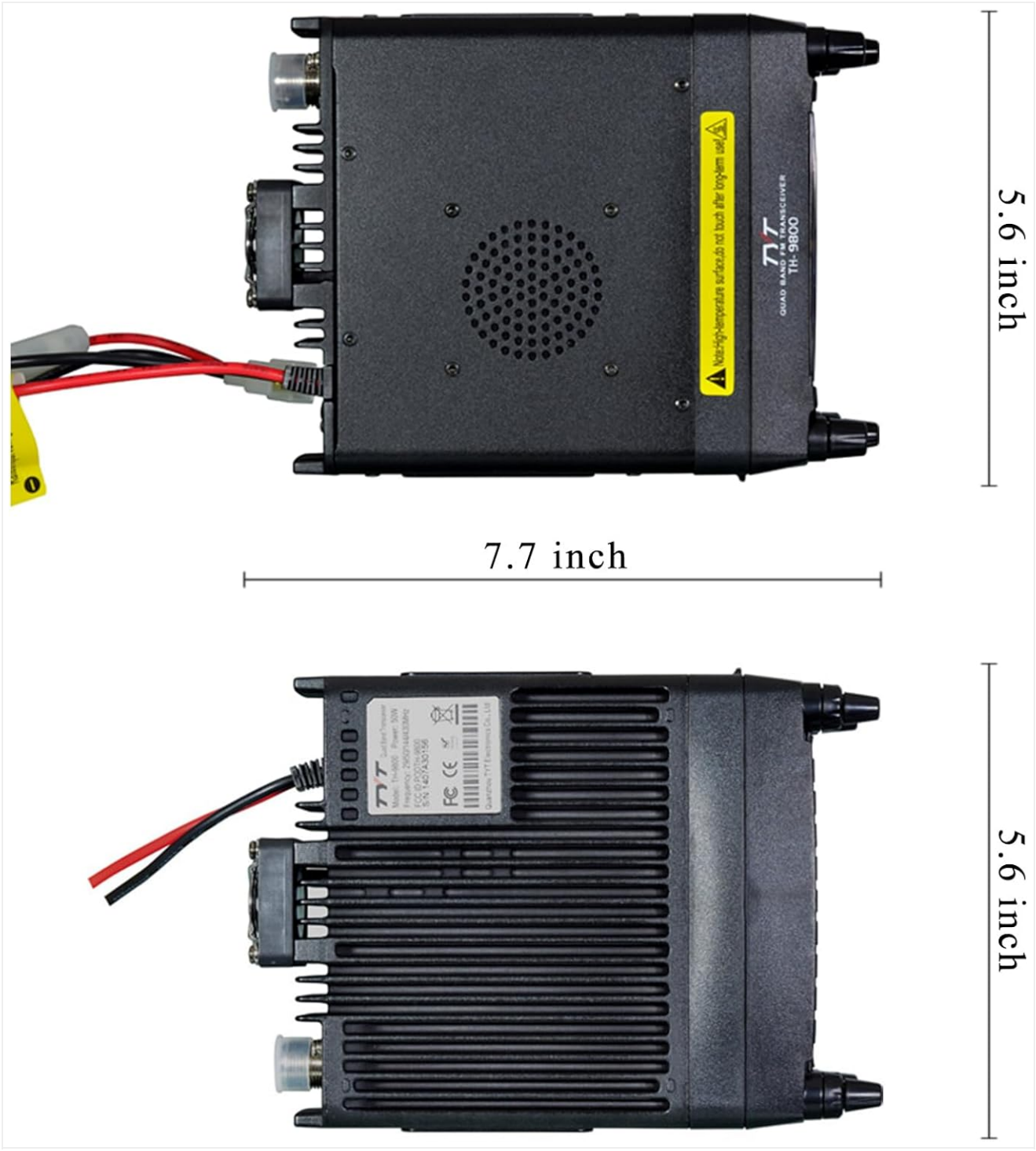


Image 9.1: Radio Unit Side Dimensions. This image provides a side view of the TH-9800 Plus radio unit, indicating its length of 7.7 inches and height of 5.6 inches.

Image 9.2: Radio Unit and Front Panel Dimensions. This composite image shows various views (top, front, side) of both the main radio unit and the detachable front panel, with measurements for width (5.6 inches), height (1.6 inches), and length (7.7 inches).

10. Warranty and Support

Warranty Information: Please refer to the warranty card included with your product or contact the seller for specific warranty terms and conditions.

Customer Support: For any questions, technical assistance, or support regarding your VMUKSAN TYT TH-9800 Plus, please contact us via Amazon Message. We aim to respond to all inquiries within 24 hours.

For additional resources, including programming software and updated drivers, please visit the official TYT Electronics website or relevant amateur radio community forums.