

DCS Code Inversion

If you find that the TH-7800 receiver squelch does not open when both you and the other station are using a common DCS code, you can try the following:

1. Short press the **[SET]** key to enter the Menu mode.
2. Rotate the "Main" band **DIAL** to select Menu # 8 (**DCS.N/R**).
3. Short press the "Main" band **DIAL** knob, then rotate the "Main" band **DIAL** to select the following mode.

TRX N: Both Encoder & Decoder DCS Normal

RX R: Encoder DCS Normal; Decoder DCS Inverted

TX R: Encoder DCS Inverted; Decoder DCS: Normal

TRX R: Both Encoder & Decoder DCS Inverted

4. Short press the **[SET]** key to save the new setting and exit to normal operation.

Tone Search Scanning

In operating situation where you don't know the CTCSS or DCS tone being used by another station or stations, you can command the radio to listen to the incoming signal and scan in search of the tone being used. It works either in the VFO or Memory mode.

To scan for the tone in use:

1. Set the radio up for either CTCSS or DCS decoder operation. In the case of CTCSS, the "**ENC.DEC**" will appear on the display; in the case of DCS, "**DCS**" will appear on the display.
2. Short press the **[SET]** key to enter the Menu mode.
3. Rotate the "Main" band **DIAL** to select Menu # 30 (**TONE F**) when CTCSS is selected, or Menu # 7 (**DCS.COD**) during DCS operation.
4. Short press the "Main" band **Dial** knob to enter adjustment status.
5. Press the "Main" band **[SCN]** key to start scanning for the incoming CTCSS tone or DCS code.

6. When the radio detects the correct tone or code, it will halt on that tone/code, and audio will be allowed to pass. Short press the "Main" band **DIAL** to lock in that tone/code, then press the **[SET]** key to save the new setting and exit to normal operation.

Note: If the Tone scan feature does not detect a tone or code, it will continue to scan. When this happens, it may be that the other station is not sending any tone. Press the **[SCN]** key to halt the scan at any time.

User-defined CTCSS Tone / DCS Code Operation

The TH-7800 has the user-defined CTCSS Tone / DCS Code capability.

For CTCSS Tone:

1. Short press **[SET]** key to enter the Menu mode.
2. Rotate the "Main" band **DIAL** to select Menu # 30 (**TONE F**), short press the "Main" band **DIAL** knob to enter adjustment.
3. Input the Tone frequency by the microphone's key directly. The range is from 60.0 - 260.0 Hz.
4. Press the **[SET]** key to save the new setting and exit to normal operation.

For DCS Code:

1. Short press **[SET]** key to enter the Menu mode.
2. Rotate the "Main" band **DIAL** to select Menu # 7 (**DCS.COD**), short press the "Main" band **DIAL** knob to enter adjustment.
3. Input the DCS code number by the microphone's key directly. The range is from 000 - 777 Normal & Inverted, totally 1024 groups.
4. Press the **[SET]** key to save the new setting and exit to normal operation.

Various Scanning

The TH-7800 allows you to scan just the memory channels, the entire operating band, or a portion of that band. It will halt on signals encountered, so you can talk to the station(s) on that frequency, if you like.

Before you begin to scan, select the way in which you would like the scanner to resume scanning after it halts on a signal.

To set the scan-Resume mode:

1. Short press the **[SET]** key to enter Menu mode.
2. Rotate the "Main" band **DIAL** to select Menu # 25 (**SCAN**).
3. Short press the "Main" band DIAL knob, then rotate the "Main" band **DIAL** to select the desired scan-resume mode.

TIME: the scanner will halt on a signal it encounters, and will hold 5 seconds. If you do not take action to disable the scanner within 5 seconds, the scanner will resume even if the stations are still alive.

BUSY: The scanner will halt on a signal it encounters. 2 seconds after the carrier has dropped as the other station(s) ceased transmission, the scanner will resume.

4. Press the **[SET]** key to save the new setting and exit to normal operation.

Note: the default setting for scan-resume mode is "TIME".

VFO Scanning

1. Select the VFO mode by pressing **[V/M]** key, if necessary.
2. Press the **[SCN]** key to start scanning.
3. Rotate the "Main" band **DIAL** to change scanning frequency direction.
4. If and when the scanner encounters a signal strong enough to open the squelch, the scanner will halt temporarily; the decimal point of the frequency display will blink during this "Pause" condition.
5. The scanner will then resume according to the Scan-Resume mode selected in previous step.
6. To cancel scanning, press the **[SCN]** key again.

Memory Scanning

1. Select the Memory mode by pressing **[V/M]** key, if necessary.
2. Press the **[SCN]** key to start scanning.

3. As with VFO mode, the scanner will halt on any signal and resume scanning according to the Scan-Resume mode.

4. To cancel the scanning, press the **[SCN]** key again.

Set a "Skipped" Channel During Memory Scan Operation

Some continuous-carrier stations will seriously impede scanner operation and they may be "skipped" during scanning, if you like.

1. Select the Memory mode by pressing the **[V/M]** key, if necessary.
2. Rotate the **DIAL** to select the Memory channel to be skipped.
3. Press and hold the **[SCN]** key for 1/2 second and the "**SKIP**" icon will appear on the display. The current Memory channel will now be ignored during scanning. The "**SKIP**" icon will also appear when you recall the "skipped" memory channel manually.
4. To cancel the "skipped" feature, press and hold the **[SCN]** key for 1/2 second again to select "OFF".

Preferential Memory Scanning

Set up a "Preferential Scan List" of channels which you can "flag" within the memory system. These channels are designated by a "◀" icon when you have selected them.

When you select Preferential Memory Scan mode and start scanning, only those channels bearing the "◀" icon will be scanned.

How to set up and use the Preferential Scan List:

1. Select the Memory mode by pressing the **[V/M]** key, if necessary.
2. Rotate the **DIAL** to select the channel which you wish to add to the Preferential Scan List.
3. Press and hold the **[SCN]** key for 1/2 second, several times if necessary, so as to make the "◀" icon appear by the channel designator.

To scan Preferential Memory Scan:

1. Short press the **[SET]** key to enter the Menu mode.
2. Rotate the "Main" band **DIAL** to select Menu # 26 (**SCAN M**).
3. Short press the "Main" band **DIAL** knob, then rotate the "Main" band **DIAL** to "**MSM**".
4. Press the **[SET]** key to save the new setting and exit to normal operation.
5. Now, press the **[SCN]** key to start Preferential Memory Scanning. Only the channels which have the "◀" icon appended to the channel number will be scanned.
6. To cancel the Preferential Memory Scanning, select "**MEM**" in step 3 above.

Programmable Memory Scan

This feature allows you to set sub-band limits for either scanning or manual VFO operation.

1. Select the VFO mode by pressing **[V/M]** key, if necessary.
2. Store the frequency 1 into Memory Channel # L1 (the "L" designates the Lower sub-band limit).
3. Likewise, store the frequency 2 into Memory Channel # U1 (the "U" designates the upper sub-band limit).
4. Switch to the Memory mode by pressing **[V/M]** key once, then rotate the DIAL to select Memory Channel # L1.
5. Press and hold in the **[V/M]** key for 1/2 second to start operation; the "**MT**" label will appear on the display. Tuning and scanning will now be limited within the just-programmed range.
6. Five pairs of Band Limit memories, labeled L1/U1 through L5/U5 are available. You therefore can set upper and lower operation limits on a number of bands, if you like.

Note:
Please make sure CH # L1 frequency is lower than CH # U1 frequency and both of them are in the same frequency band. If not it will be invalid.

Priority Channel Scanning (Dual Watch)

The TH-7800 has a two-channel scanning capability which allows you to operate on a VFO, Memory channel, or Home

channel, while periodically checking a user-defined "Priority" Memory Channel for activity.

VFO Priority

1. Recall the memory channel you wish to use as the "priority" frequency.
2. Select the VFO mode by **[V/M]** key, if necessary.
3. Press and hold in the **[HM]** key for 1/2 second to activate the VFO priority mode. The display will remain on the VFO frequency, but every 5 seconds the TH-7800 will check the Priority Channel for activity.
4. Press the **[V/M]** key to disable the VFO Priority mode and exit to regular VFO operation.

Memory Priority

1. Store the frequency you wish to be the "Priority" Channel into memory channel "1".
2. Set the TH-7800 for operation on another memory channel.
3. Press and hold in the **[HM]** key for 1/2 second to activate the Memory Priority mode. The display will remain on the current memory channel frequency, but every five seconds the TH-7800 will check the Priority Channel (memory channel "1") for activity.
4. Press the **[V/M]** key to disable the Memory Priority mode and exit to regular memory operation.

DTMF Signaling Operation

The TH-7800 has two methods to start DTMF signaling.

1 - Using the microphone's numeric keys

Press and hold PTT switch then directly input the other station(s) telephone numbers by using the microphone's numeric keys, 0 ~ 9, *, #, A, B, C, D.

2 - Using the DTMF Autodialer feature

16 DTMF autodialer memories are available. These DTMF autodialer memories can store up to 16 digits of a telephone number for, repeater autopatch or other uses.

To load DTMF autodialer memories:

1. Short press the **[SET]** key to enter the Menu mode.
2. Rotate the "Main" band **DIAL** to select the Menu # 12 (**DTMF W**).
3. Press the "Main" band **DIAL** knob, then rotate the "Main" band **DIAL** to select the DTMF Autodialer memory channel number ("d-1" - "d-16") into which you wish to store a telephone number.
4. Press the "Main" band **DIAL** knob then rotate the **DIAL** to select the first digit of the telephone number you wish to store.
5. When you have selected the correct digit, press the **DIAL** knob to confirm. Now rotate the "Main" band **DIAL** to select the second of the 16 available numbers in this current DTMF autodialer memory register.
6. Repeat this procedure for each digit in the telephone number. If you make a mistake, press the microphone's **[DWN]** key to move back to the first digit, then re-enter the correct number. Press the **[SCN]** key to clear previous digits.
7. When entry of all digits is complete, press the **[SET]** key to save the new setting.
8. If you wish to store another DTMF string, rotate the "Main" band **DIAL** to select another DTMF memory register, then repeat steps 4 through 7 above.
9. When all required DTMF memories are filled to your need, press the **[SET]** key to save and exit to normal operation.

To transmit the memorized telephone number:

1. Press the **[SET]** key to enter the Menu mode, rotate the **DIAL** to select the DTMF autodialer memory channel to be transmitted through Menu # 15 (**DTMF W**).
2. Press the **[SET]** key to save and exit to the normal operation.
3. Press and hold **PTT** switch, press the "Main" band **[HM]** key to transmit the tone string.

Once you have pressed the **[HM]** key in the above step, you can release the **PTT**, as the autodialer will transmit the whole DTMF string automatically.

And you can set DTMF digits sending speed levels and the delay time between you press the **[HM]** key (with **PTT** pressed) and the first DTMF digit is sent through Menu # 11 (**DTMF S**) and Menu # 10 (**DTMF D**).

2 Tone & 5 Tone Signaling Operation

The difference between 2/5 Tone and DTMF operation is that 2/5 Tone can be sent using the autodialer feature only, not by the microphone's numeric keys. And you can load 2/5 Tone autodialer memories by the PC programming software only, not by manual.

To transmit the memorized 2/5 Tone signaling:

1. Select 2 Tone memorized channel through Menu # 38 (**2 TONE**), Menu # 39 (**5 TONE**).
2. Press and hold **PTT** switch, press the "Main" band **[LOW]** key to transmit 2 Tone signaling; press the "Main" band **[V/M]** key to transmit 5 Tone signaling.

Auto Range Transponder System (ARTS) Operation

The ARTS feature uses DCS code to inform both parties when you and another ARTS-equipped station are within communications range. This may be particularly useful during Search and Rescue situations, where is important to stay in contact with other members of your group.

Both stations must set up their DCS codes to the same code number, then activate their ARTS feature using the command appropriate for their radio.

Whenever you push the **PTT** switch, or every 25 seconds after ARTS is activated, your radio will transmit a signal which includes a DCS code for about one second. If the other radio is in range, the beeper will sound (if enabled) and the display will show **"IN.RNG"** as opposed to the out of range display **"OUT.RNG"** in which ARTS operation begins.

If you move out of range for more than one minute, your radio will sense that no signal has been received, three beeps will sound, and the display will revert to **"OUT.RNG"**. If you move back into range, your radio will again beep, and the display will change back to the **"IN.RNG"** indication.

During ARTS operation, it is not possible to change the operating frequency or other settings on the "Main" band; you must stop ARTS in order to resume normal operation.

To activate ARTS:

1. Set your radio and other radios to the same DCS code number.
2. Press the **[SET]** key to enter the Menu mode.
3. Rotate the "Main" band **DIAL** to select Menu # 3 (**ARTS**).
4. Press the "Main" band **DIAL** knob and rotate the **DIAL** to select the desired ARTS beep option.

IN.RNG: The beeps are issued only when the radio first confirms that you are within range, but does not re-confirm with beeps thereafter.

ALWAYS: Every time a polling transmission is received from the other station, the alert beeps will be heard.

5. Press the "Main" band **DIAL** knob to confirm and the "**OUT.RNG**" will display on the LCD. ARTS operation has now commenced.
6. Every 25 seconds, your radio will transmit a "polling" call to the other station. When the station doesn't respond with its own ARTS polling signal, the display will change to "**OUT.RNG**" to confirm that other station's polling code was not received in response to yours.
7. Press the **[SET]** key to exit **ARTS** operation and exit to normal operation.

Cross-band Repeater Operation

The TH-7800 can be set up to operate as a cross-band repeater via a simple Menu procedure. This feature is useful for emergency portable work in a remote area, and for cross-band linking.

Note:

1. Check the relative rules and regulations for your country to ensure that this type of operation is permitted.
2. Pick your frequency pair carefully, so as not to cause harmful interference to other users. If you are not sure of activate repeater frequencies in your area, a safe rule is to stay off of the repeater sub-bands and user the FM simplex portion of each band. Contact your area's frequency coordinator for guidance.

3. Remember that the transmit duty cycle will be much higher during repeater service, so we recommend that the transmit power level be set to a Low level, to ensure cooler operation.

How to set up cross-band repeater operation:

1. Configure both bands setting as desired and the squelch such that background noise is silenced before enabling cross-band repeater operation.
2. Press the **[SET]** key to enter the Menu mode.
3. Rotate the "Main" band **DIAL** to select Menu # 35 (**X-PRT**).
4. Press the "Main" band **DIAL** knob once, "**XSTART**" will appear on the display.
5. Press the "Main" band **DIAL** knob again to activate the cross-band repeater mode. Now the "**MAIN**" icon will disappear on the display. And both the left and right bands can be used for transmitting or receiving.
6. Press the **[SET]** key to exit the cross-band repeater mode.

Microphone Key Assignments

TH-7800 microphone's **[P1]/[P2]/[P3]/[P4]** buttons can be assigned different function by the user, if you wish to utilize another function on one of these keys.

To assign the function to a key:

1. Press the **[SET]** key to enter the Menu mode.
2. Rotate the "Main" band **DIAL** to select the Menu # 19 - # 22 to be configured (# 19 **PG P1**, # 20 **PG P2**, # 21 **PG P3**, # 22 **PG P4**)
3. Press the "Main" band **DIAL** knob, then rotate the "Main" band **DIAL** to select the function you wish to assign to the button you selected in the previous step.
4. Press the **[SET]** key to save the new setting and select another programmable button to modify, and repeat the above steps.
5. Press the **[SET]** key to save the setting and exit to the normal operation.

Name	Function
SCAN	Activate the Scanner on the "Main" band.
SQL.OFF	Opens the Squelch on the "Main" band to allow un-muted reception.
TCALL	Activates 1750 Hz Tone Burst (1000/1450/1750/2100 Hz tone can be selected in the programming software).
RPTR	Selects Repeater Shift direction on the "Main" band.
PRI	Activates the Priority feature on the "Main" band.
LOW	Selects the transmit power output level on the "Main" band.
STONE	Activates the CTCSS or DCS operation on the "Main" band.
MHZ	Allows tuning in 1 MHz step on the "Main" band.
REV	Reverses the TX and RX frequencies during split-frequency operation.
HOME	Switches operation to the "Home" channel on the "Main" band.
BAND	Switch the "Main" band of operation between the "left" band and "right" band.
VFO/MR	Switches frequency control between the VFO and Memory modes on the "Main" band.

Menu Operation

Procedure:

1. Short press the **[SET]** key to enter the Menu mode.
2. Turn the "Main" band **DIAL** to select the Menu item to be adjusted (You can recall the Menu items using the microphone directly).
3. Short press the "Main" band **DIAL** knob to enable adjustment, then rotate the **DIAL** to perform the actual adjustment.
4. After completing your adjustment, short press the **[SET]** key to save the new setting to exit to normal operation.

1 Automatic Power OFF - APO

Function: selects the APO time (time before power goes off).

Available Values: OFF / 0.5H / 1H / 2H

Default: OFF

2 Automatic Repeater Shift - ARS

Function: enable/Disable the ARS feature.

Available Values: ON / OFF

Default: OFF

3 Auto Range Transponder System - ARTS

Function: select the ARTS beep mode.

Available Values: IN RNG / ALWAYS

IN RNG: Activates the ARTS feature; a high tone will sound when the transceiver first detects that you are within range, and a low beep will sound when the other station goes out of range.

ALWAYS: Activates the ARTS feature; a high tone will sound every time a polling transmission is received from the other station, and a low beep will sound once when the other station goes out of range.

4 BEEP

Function: enable/Disable the beeper

Available Values: BEP.ON / BEP.OFF

Default: BEP.ON

5 Clock frequency shift - CLK.SFT

Function: shifting of CPU clock frequency

Available Values: SFT.ON / SFT.OFF

Default: SFT.OFF

6 DIMMER

Function: setting of the display brightness level.

Available Values: DIM. OFF / 1 / 2 / 3 / 4

Default: DIM 3

7 DCS.COD

Function: setting the DCS code.

Available Values: 104 standard DCS codes.

Default: 023

8 DCS.N/R

Function: select "Normal" or "Inverted" DCS coding.

Available Values: TRX N / TX R / RX R / TRX R

Default: TRX N

9 DSP.MOD

Function: select Memory channel display mode.

Available Values: DSP.FRQ / DSP.NAM

Default: DSP.FRQ

10 DTMF D

Function: setting of the DTMF autodialer delay time.

Available Values: 50 / 250 / 450 / 750 / 1000 MS.

Default: 450 MS.

11 DTMF S

Function: setting of the DTMF autodialer sending speed.

Available Values: 50 / 75 / 100 MS.

Default: 50 MS.

12 DTMF W

Function: loading of the DTMF autodialer memories.

16 DTMF autodialer memories are available.

13 HYPER

Function: enable/disable the automatic writing feature for the Hyper Memory.

Available Values: MANUAL / AUTO

Default: MANUAL

14 KEY.MOD

Function: select the key functions for the "right" band function switches.

Available Values: KEY1 / KEY2

Default: KEY1

15 LOCK

Function: enable/disable the Key/Button Lock feature.

Available Values: MANUAL / AUTO

Default: MANUAL

16 LOCKT

Function: enable/disable the PTT lock feature.

Available Values: OFF / BAND R / BAND L / BOTH

Default: OFF

OFF: Enable the PTT switch.

BAND R: Disable the PTT switch on the "right" band.

BAND L: Disable the PTT switch on the "left" band.

BOTH: Disable the PTT switch on the "both" band.

17 MUTE

Function: select the audio mute mode.

Available Values: OFF / TX / RX and TX/RX

18 NAME

Function: store an alpha tag for a memory channel.

19 PG P1

Function: program the microphone's [P1] button assignment.

Default: BAND

20 PG P2

Function: program the microphone's [p2] button assignment.

Default: VFO/MR

21 PG P3

Function: program the microphone's [p3] button assignment.

Default: TONE

22 PG P4

Function: program the microphone's [p4] button assignment.

Default: LOW

23 RF SQL

Function: Adjustd the RF SQL threshold level.

Available Values: OFF / S-2 / S-5 / S-9 / S-FULL

Default: OFF

Note: The Menu Item can be set independently on both the "left" and "right" bands.

24 RPT.MOD

Function: set the repeater shift direction.

Available Values: RPT.OFF / RPT.- / RPT.+

Default: RPT.OFF

Note: The repeater shift can be set independently on both the "left" and "right" bands.

25 SCAN

Function: selects the scan-resume mode.

Available Values: TIME / BUSY

Default: TIME

TIME: the scanner will halt on a signal it encounters, and will hold 5 seconds. If you do not take action to disable the scanner within 5 seconds, the scanner will resume even if the stations are still alive.

BUSY: The scanner will halt on a signal it encounters. 2 seconds after the carrier has dropped as the other station(s) ceased transmission, the scanner will resume.

26 SCAN MODE

Function: selects the memory scan mode.

Available Values: MEM / MSM

Default: MEM

MEM: Enables Memory Scanning on all the memory channels (except the memory channel skip memory).

MSM: Enables Memory Scanning on Preferential Memory Channels only.

27 SHIFT

Function: set the offset of the repeater shift.

Available Values: 0.00 ~ 99.5 MHz

Default: 600 KHz (UHF), 600 Hz (VHF)

Note: the shift can be set independently for each band.

28 STEP

Function: set the synthesizer steps.

Available Values: 2.5 / 5 / 6.25 / 7.5 / 8.33 / 10 / 12.5 / 15 / 25 / 30 / 50 / 100 KHz

Default: 12.5 KHz

Note: the step can be set independently for each band.

29 SPK

Function: set the squelch mode.

Available Values: SQ / CTC / TON / C+T and C/T

Default: SQ

SQ: open the squelch when receive a matching carrier.

CTC: open the squelch when receive a matching carrier and exact CTCSS tone / DCS code.

TON: open the squelch when receive a matching carrier and exact DTMF/2TONE/5TONE signaling.

C+T: open the squelch when receive a matching carrier, exact CTCSS tone/DCS code and DTMF/2TONE/5TONE signaling.

C/T: open the squelch when receive a matching carrier and either CTCSS tone/DCS code or DTMF/2TONE/5TONE signaling.

30 TONE F

Function: set the CTCSS tone frequency.

Available Values: 50 standard CTCSS tones.

Default: 100 Hz.

Note: the CTCSS tone can be set independently for each band and each memory channel.

31 TONE M

Function: select the tone encoder and/or decoder mode.

Available Values: OFF / ENC / ENC.DEC / DCS.

Default: OFF.

ENC: CTCSS Encoder.

ENC.DEC: CTCSS Encoder/Decoder.

DCS: Digital Code Squelch Encoder/Decoder.

32 Time-Out Timer - TOT

Function: set the time-out timer.

Available Values: OFF / 1 ~ 30 min

Default: 6 min

33 Talk Around - TALKAR

Function: change to simplex working mode when you are out of the repeater range or the repeater is not activated.

Available Values: ON / OFF

Default: OFF

34 WID.MID.NAR

Function: select bandwidth to reduce the MIC gain (and Deviation).

Available values: WIDE/MID/NARROW

Default: WIDE

Note: the bandwidth can be set independently for each band.

35 Cross-band repeater - X-RPT

Function: enable/disable the Cross-band repeater feature.

36 AM

Function: enable/disable the AM mode.

Available Values: ON / OFF

Default: OFF

37 AUT.AM

Function: enable/disable automatic AM mode.

Available Values: ON / OFF

Default: ON

38 2TONE

Function: assign the 2 Tone autodialer memory channel.

Available Values: 2T-01 ~ 2T-16

Default: 2T-01

39 5TONE

Function: assign the 5 Tone autodialer memory channel.

Available Values: 5T-01 ~ 5T-16

Default: 5T-01

40 SCR - Scramble

Function: enable/disable the scramble feature.

Available Values: ON / OFF

Default: OFF

41 COMP - Compander

Function: enable/disable the voice compander feature.

Available Values: ON / OFF

Default: OFF

42 HSD.TYP

Function: activate 2 TONE/ 5 TONE/ DTMF Squelch.

Available Values: OFF / 2 TONE / 5 TONE / DTMF

Default: OFF

Factory Reset Operation

Procedure:

- 1. Turn the radio off.
- 2. Press and hold the **LEFT [LOW]** key while turning the radio on.
- 3. Rotate the **DIAL** to select the resetting menu.
- F-1 SETMOD RESET:** Reset the menu settings to their factory defaults.
- F-2 HYPER RESET:** Clears the Hyper Memory settings to factory defaults.
- F-3 MEMORY RESET:** Clears the regular Memory settings to factory defaults.
- F-4 ALL RESET:** Clears all the memories and other setting to factory defaults.
- 4. Once you have made your selection in step 3, short press the **[SET]** key to complete the reset procedure.

Simple Trouble Shooting

Problem	Possible Causes and Potential Solutions
Power is on, but nothing appears on the display.	"+" and "-" polarities of power connection are reversed. Connect Red lead to positive terminal and black lead to negative terminal of DC power supply.
Fuse is blown.	Check and solve problem resulting in blown fuse and replace with new one.
Display is too dark.	Adjust display brightness level to high.
No sound comes from speaker.	Squelch is muted. Reduce squelch level. CTCSS/DCS and DTMF/2 TONE/5 TONE Squelch is active. Turn them off.
Key and Dial doesn't work.	Keypad lock is activated. Disable it.
Press PTT key but TX doesn't work.	Microphone or antenna connection is poor. Connect them properly.

Specifications

General

Frequency Range	Dual band: EU Tx: 144-146Mhz,430-440Mhz US Tx: 144-148Mhz,420-450Mhz Rx: 136-174Mhz,400-480Mhz AM/FM RX: 108-180MHZ,
Channel Capacity	809 channels
Channel Steps	2.5/5/6.25/10/12.5/15/20/25/50 KHz
Modes of Emission	F3
Antenna Impedance	50 Ohms, unbalanced (Antenna Duplexer built-in)
Frequency Stability	*5ppm
Operating Temperature Range	13.8VDC (*15%),negative ground
Supply Voltage	-10°C~+55°C
Current Consumption (Approx)	RX: 0.5 A (Squelched) TX: 8.0 (50/430MHz), 8.5A (29/144MHz)
Case Size (W x H x D)	140 x 41.5 x 168 mm (w/o knobs & connectors)
Weight	1000g

Transmitter

Output Power	50 / 25 / 5 W (144 MHz) 40 / 25 / 5 W (430 MHz)
Modulation Type	Variable Reactance
Maximum Deviation	Better than-60dB (29 MHz: Better than-50dB)
Modulation Distortion	Less than 3%
Microphone Impedance	2 k Ω

Receiver

Circuit Type	Double-conversion super-heterodyne
Intermediate Frequencies	49.95 MHz / 450 KHz (Left band) 38.85 MHz / 450 KHz (Right band)
Sensitivity (for 12dB SINAD)	Better than 0.2 μ V
Squelch Sensitivity	Better than 0.16 μ V
Selectivity	12 KHz/30 KHz
Maximum AF Output	2 W @ 8 Ω for 5% THD
AF Output Impedance	4-6 Ω

EU Warning Statement

Use the Mobile RADIO in the environment with the temperature between -10 and 55 , otherwise, it may damage your radio. It can be operating under 2000m.

Hereby, We, declare that the radio equipment type Mobile Radio is compliance with RED Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.XXXXXX.com

RF Exposure Warning Statements:

This equipment complies radiation exposure limits set forth for an uncontrolled environment. This equipment shall be installed and operated with minimum distance 194..0cm between the radiator & body.

FCC Warning Statement

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 including received 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.

RF Exposure and Separation Distance

This radio transmitter has been approved by FCC to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

External Antenna:
Maximum Antenna Gain: 3 dBi
Antenna Impedance: 50 Ohms

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

