(8) Time-Out-Timer (TOT) - MENU No.8

The TOT function is used to prevent a too long transmission and limits the tx time: TOT temporarily stops the transmission if the radio has been used beyond the max pre-set time (for example 15s, 30s, 45s, etc).

Note: If this option is set to OFF, press and hold the PTT key to keep transmission.

(9) Dual Watch Operation (D.Wait) - MENU No.9

When this function is activated, you can receive the frequency of channel A and channel B at the same time.

If a signal is detected, the▲/▲ pointer will blink on the corresponding channel or frequency.

Note: In Dual Watch operation mode, you can change the parameter of AB channel or frequency freely.

(10) Receiving DCS (Rx DCS) - MENU No.10

DCS codes are similar to access codes and can be added to channels, so as to create a sort of personal channel. They enable the radio to communicate with the users that are tuned on the same channel and have set the same DCS code.

You can choose amongst:

• **Off:** Off

• D023N-D754N (Normal DCS), D023I-D754I (Inverse DCS)

Note: In radio there are 208 groups of normal and inverse DCS codes. This function cannot be amended in channel mode.

(11) Receiving CTCSS (Rx CTCSS) - MENU No.11

As DCS codes, the CTCSS codes can be added to the channels for creating new private channels.

Note: there are 50 groups of CTCSS tones. In channel mode the CTCSS tones cannot be changed.

(12) Transmitting DCS (Tx DCS) - MENU No.12

In this Menu you activate DCS codes in tx mode. You can choose between normal R-DCS (D023N-D754N) and inverted R-

DCS (D023I-D754I)

Note: the groups of DCS codes are 208. DCS codes cannot be changed in channel mode.

(13) Transmitting CTCSS (Tx CTCSS) - MENU No.13

In this Menu you can set a CTCSS tone in tx mode.

You can choose: Off or CTCSS (67.0 to 254.1 Hz)

Note: there are 50 groups of CTCSS tones. In channel mode the CTCSS tones cannot be changed.

(14) Voice prompts function (Voice) - MENU No. 14

With this function, you activate a voice that informs you about any operation/ selection you are doing.

(15) TX-SEL - MENU No. 15

Transmit on MAIN Channel

Transmit on MOST RESENT receive channel

(16)Scan Add (Scan Add) - MENU No.16

In channel mode, to scan the current channel, the channel must be added to the scan group.

•**On:** Turn on the scan function of the current channel.

•**Off:** Do not scan the current channel.

(17)SCAN Resume Mode (Scan Mode) - MENU No.17

Thanks to this function, radio can SCAN in frequency or channel mode. You can choose amongst three options:

• **Time-operated SCAN**

Whenever a signal is detected, the radio will suspend the SCAN for 5 seconds, and then will continue to SCAN even if the signal is still present.

• Carrier-operated SCAN

Whenever a signal is detected, the radio will stop scanning. It will resume to SCAN once the signal will disappear.

• Search -Search SCAN

The radio will stop scanning once a signal is detected.

(18) FM Dual Watch (FM-DW) - MENU No.18

(19) Channel A Display Mode (MDF-A) - MENU No.19

This function is used to set the display mode of channel A.

Display modes:

• Frequency: Frequency + channel No.

• NAME: Channel name

Note: Channel name mode must be set by the programming software. Up to three numbers or characters can be edited.

(20)Channel B Display Mode (MDF-B) - MENU No.20

This function is used to set the display mode of channel B.

Display modes:

• Frequency: Frequency + channel No.

• NAME: Channel name

Note: Channel name mode must be set by the programming software. Up to three numbers or characters can be edited.

(21)Busy Channel Lock (Busy Lockout) - MENU No. 21

When this function is on, it may prevent other radios' interference. If the selected channel is being used by other

radios,when you press key PTT, your radio cannot transmit.

Release the PTT and transmit as soon as the frequency is no longer busy

(22) Auto Keypad Lock (AUTO LK) - MENU No.22

When this feature is activated, the keypad will be automatically locked after 15s; this prevents accidental pressure of any keys.

The keypad lock can be manually activated/deactivated through the keypad: keep pressed [*] .

(23) Frequency offset direction (Direction) - MENU No.23

Using this function, you can set the direction of the frequency offset in rx and tx.

You have the following options:

• Plus: Positive offset;

• Minus: Negative offset;

• None: None offset.

Note: you should set different frequency deviation according to the repeaters selected. This function is not enabled in channel mode.

(24) Frequency offset (Offset) - MENU No. 24

In this MENU you can set the deviation between tx and rx. The frequency offset of this radio is 00.000-99.998MHz.

(25) Channel store - (Memory) - MENU No. 25

When the radio is in frequency working mode or standby mode, input the desired frequency or parameters directly.

NOTES: If you want to set CTCSS tones, DCS codes or the frequency offset, you have to do it before storing the channel. The channels already stored are displayed as CH-XXX ("CH" and -channel number), and other channels only display channel numbers.

(26) Channel Delete (Delete) - MENU No.26

In this menu you can delete a channel of the radio.

(27) Alarm Mode (Alarm Mode) - MENU No.27

This function can set the tone alarm/code alarm/site alarm of the radio.
Keep pressed the [FM/SOS] key for 3 seconds to start the alarm tone.
The following three options can be selected:
• **Site:** the speaker emits an alarm tone but the radio doesn't transmit;
• **Tone:** the speaker emits an alarm tone and the radio transmits it;
• **Code:** the speaker emits an alarm tone and the radio transmits it followed by ANI-ID code.

(28) Scan of frequencies with CTCSS (SEEK CTC) - Menu No. 28

The function allows scanning the frequencies with CTCSS tone enabled.
NOTES: The function cannot be activated when the radio is set in Channel mode. The Scan will start only when the receiving band will detect a signal.

(29) Scan of frequencies with DCS (SEEK DCS) - Menu No. 29

This function allows scanning the frequencies with DCS code enabled.
NOTES: The function cannot be activated when the radio is set in Channel mode. The Scan will start only when the receiving band will detect a signal.

(30) Squelch tail elimination (TAIL) - Menu No. 30

This function is used eliminate squelch tail noise between handhelds that are communicating directly (no repeater).
Reception of a 55 Hz or 134.4 Hz tone burst mutes the audio long enough to prevent hearing any squelch tail noise.

(31) Roger beep (ROGER) - Menu No. 31

When the PTT is released, the radio will beep to confirm to other users that you have finished your transmission and that

they can start talking.

(32) 1750Hz Repeater Tone (R-TONE) - Menu No.32

With this function you can select 1000Hz, 1450Hz, 1750Hz, 2100Hz repeater tone. To send out a repeater tone; You hold down the [PTT] + [SK2] key.
If you have the keypad lock enabled on your radio, you can still send a 1750Hz tone the regular way without having to unlock your radio.

(33) Language selection (Language) - Menu No. 33

With this function, you can select the language of the LCD display and operation prompt.

(34) Frequency hopping system (Hopping RX) - MENU No. 34

With this function, you can activate the frequency hopping system, improve the anti-interference ability of the radio, and

(35) Reset (Reset) - Menu No.35

With this function you can reset the transceiver to the factory-programmed settings and parameters. After that, you can set the desired functions.
There are two types of reset:
• **VFO:** Menu Reset
• **ALL:** Menu and channel Reset
reduce the risk of being monitored.

(36) Dual Band single display (SYNC) - Menu No.36

The radio is dual-band, dual-display, and the screen can display A/B frequency band at the same time. It can also be set to dual-band single-screen display. When single frequency point is displayed, the channel nickname, frequency and channel number will be displayed at the same time.

•**On:** Turn on the SYNC function and display the alias, frequency and channel number of the current channel.
•**Off:** Turn off the SYNC function, which is a dual-segment dual display mode. The main frequency and sub frequency will be displayed.

(37) PTT-ID (PTT-ID) - MENU No.37

With this function you can decide when sending the ANI-ID code in tx mode.
You can choose amongst 4 possibilities.
• **Off:** press PTT to turn it off
• **BOT:** the code is sent when you press the PTT
• **EOT:** the code is sent when the PTT is released
• **BOTH:** the code is sent when you press and release the PTT
Note: select 'OFF' when using in case of affecting the radio.

(38) DTMFST (DTMFST) - MENU No.38

Determines when DTMF Side Tones can be heard from the transceiver speaker. You can choose amongst four options:
• **Off:** No DTMF Side Tones are heard
• **DT-ST :** Side Tones are heard only from manually keyed DTMF codes
• **ANI-ST:** Side Tones are heard only from automatically keyed DTMF codes
• **DT+ANI:** All DTMF Side Tones are heard

(39) ANI-ID (ANI-ID) - MENU No.39

With this function you can set your ID-code. It can be programmed by the proper programming software. You can edit up to 5 digits.

(40) Squelch tail elimination of repeater (RP-STE) - Menu No. 40

This function is used when the radio operates through a repeater; when the PTT is released, the repeater will emit the end

transmission tone to confirm it is working.
Available settings:
Off, 1,2,3,4,5,….10 to set the delay time.
Note: Please disable this function in normal using, lest affect your normal conversation.

(41) Delay the squelch tail of repeater (RPT-RL) - Menu No.41

With this function you have the confirmation that the repeater has transferred the signal. You can choose amongst: Off 1,2,3,4,5,….10 to set the delay time.

(42) Scramble - Menu No.42

With this function only one received the same decryption program in order to obtain voice.To communicate with each other only to open the same scramble between loom, If scrambling different, the machine can receive signals, but can not hear clearly what is said.

(43) Dec.code - Menu No.43

With this function,you can figure out the frequency and CTCSS/DCS of nearby transmission.
Step 1: Turn on the Dec.code
Step 2: Long press the number 1
Step 3: The monitor will show frequency and DCS when somebody transmit.

(44) Version - Menu No.44

This Function is to display the software version, to know whether your radio needs to update or not.

Appendix A. – Trouble shooting guide

Phenomena	Analysis	Solution
You cannot turn on the radio.	The battery may be installed improperly.	Remove and reattach the battery.
	The battery power may run out.	Recharge or replace the battery.
	The battery may suffer from poor contact caused by dirty or damaged battery contacts.	Clean the battery contacts or replace the battery.
During receiving, the voice is weak or intermittent.	The battery voltage maybe low.	Recharge or replace the battery.
	The volume level may be low.	Increase the volume.
	The antenna maybe loose or maybe installed incorrectly.	Turnoff the radio, and then remove and reattach the antenna.
	The speaker maybe blocked.	Clean the surface of the speaker.
You cannot communicate with other group members.	The frequency or signaling type maybe inconsistent with that of other members.	Verify that your TX/RX frequency and signaling type are correct.
	You may be too far away from other members.	Move towards other members.
You hear unknown voices or noise.	You may be interrupted by radios using the same frequency.	Change the frequency, or adjust the squelch level.
	The radio in analog mode maybe set with no signaling.	Request your dealer to set signaling for the current channel to avoid interference
You are unable to hear anyone because of too much noise and hiss.	You may be too far away from other members.	Move towards other members.
	You may be in an unfavorable position. For example, your communication may be blocked by high buildings or blocked in an underground area.	Move to an open and flat area, restart the radio, and try again.
	It may be the result of external disturbance (such as electromagnetic interference).	Stay away from equipment that may cause interference.
The radio keeps transmitting.	VOX may be turned on or the headset is not installed in place	Turn off the VOX function. Check that the headphones are in place.

NOTE: If the above solutions cannot fix your problems, or you may have some other queries, please contact your dealer for more technical support.

US:144-148 & 420-450MHz (Tx) / 108-136(AM Rx)

Appendix B. - Technical Specifications

General	
Frequency Range	EU:144-146 & 430-440MHz (Tx) /108-136(AM Rx) FM Rx: 50-76/76-108/136-174/174-350/350-470/470-600Mhz
Memory Channel	200
Operation Voltage	DC 7.4 V ±10%
Battery Capacity	2600mAh (Li-Ion)
Frequency Stability	±2.5ppm
Operating Temperature	-20℃ to +50℃
Mode of Operation	Simplex
Antenna Impedance	50ohm
Transmitter Part	
RF Output Power	≤5W
FM Modulation	11K0F3E@12.5KHz
Adjacent Channel Power	60dB @ 12.5KHz
Transmission current	≤1500mA
Receiver Part	
Receive Sensitivity	0.25μV (12dB SINAD)
Adjacent Channel Selectivity	≥55dB@12.5KHz
Inter Modulation and Rejection	≥55dB@12.5KHz
Conducted Spurious Emission	≤-57dB@12.5KHz
Rated Audio Power Output	1W @16 ohms
Receive current	≤380mA
Rated Audio Distortion	≤5%

NOTE: All specifications may be modified without prior notice or liability. Thank you.

Appendix C. - Shortcut Menu operations

MENU No.	Name (Full Name)	Enter item	LCD display	Selectable
0	Bandwidth /Narrow Bandwidth	MENU+0		Wide:25.0K Narrow:12.5K
1	Squelch - Squelch Level	MENU+1		0-9 Levels 0:Lowest 9:Highest
2	TX Power	MENU+2		Low/MID/High
3	Power Save - Battery Saving	MENU+3		OFF: 1, 2, 3, 4
4	Step –Step Frequency	MENU+4		2.5K/5.0K/6.25K/10.0K 12.5K/20.0K/25.0K/50.0K
5	Backlight –Auto Backlight	MENU+5		Bright/1,2,3…8，9,10Sec ***Time-out for the LCD backlight. (seconds)**
6	Beep- Keypad Beep	MENU+6		Off On ***Allows audible confirmation of a key press.**
7	Vox Level - VOX	MENU+7		Off, 1-9 Off: off **1:Highest Sensitivity** **9:Lowest Sensitivity**

8	TOT - Time-Out-Timer	MENU+8		15,30…600S ***This feature provides a safety switch that limits transmission time to a programmed value. This will promote battery conservation by not allowing you to make excessively long transmissions, and in the event of a stuck PTT switch it can prevent interference to other users as well as battery depletion**
9	D.Wait – Dual Watch Operation	MENU+9		Off On ***Monitor [A] and [B] at the same time. The display with the most recent activity ([A] or [B]) becomes the selected display.**
10	Rx DCS - Receiver DCS	MENU+10		Off D023N…D754N; D023I …D754I ***Mutes the speaker of the transceiver in the absence of a specific low-level digital signal. If the station you are listening to does not transmit this specific signal, you will not hear anything.**
11	Rx CTCSS - Receiver CTCSS	MENU+11		Off 67.0HZ…254.1HZ ***Mutes the speaker of the transceiver in the absence of a specific and continuous sub-audible signal. If the station you are Listening to does not transmit this specific and continuous signal, you will not hear anything.**

12	Tx DCS -Transmitter DCS	MENU+12		Off D023N…D754N; D023I …D754I ***Transmits a specific low-level digital signal to unlock the squelch of a distant receiver (usually a repeater).**
13	Tx CTCSS - Transmitter CTCSS	MENU+13		Off 67.0HZ…254.1HZ ***Transmits a specific and continuous sub audible signal to unlock the squelch of a distant receiver (usually a repeater).**
14	Voice - Voice Reminding	MENU+14		Off On ***Allows audible voice confirmation of a key press.**
15	TX-SEL	MENU-15		**Transmit on MAIN Channel** **Transmit on MOST RESENT receive channel**

16	Scan Add	MENU+16		ON: the current channel is added to the scan, the scan current channel OFF: Do not scan the current channel.
17	Scan Mode	MENU+17		Time - scanning will resume after a fixed time has passed Carrier -scanning will resume after the signal disappears Search -scanning will not resume
18	FM-DW	MENU+18		ON OFF
19	MDF-A - Channel A Display Mode	MENU+19		Frequency: Displays programmed Frequency Name: Displays the channel name ***Note: Names must be entered using software.**

20	MDF-B - Channel B Display Mode	MENU+20		Frequency: Displays programmed Frequency Name: Displays the channel name ***Note: Names must be entered using software**
21	Busy Lock – Busy Channel Lock-out	MENU+21		Off On ***Disables the [PTT] button on a channel that is already in use. The transceiver will sound a beep tone and will not transmit if the [PTT] button is pressed when a channel is already in use.**
22	AUTO LK –Automatic Keypad Lock	MENU+22		Off On ***When ON, the keypad will be locked if not used in 8 seconds. Pressing the [*m○] key for 2 seconds will unlock the keypad.**
23	Direction – Frequency Offset Direction	MENU+23		None: TX = RX (simplex) Plus: TX will be shifted higher in frequency than RX Minus : TX will be shifted lower in frequency than RX

24	Offset -Frequency shift amount	MENU+24		00.000…99.998 ***Specifies the difference between the TX and RX frequencies**
25	Memory - Store a Memory Channel	MENU+25		000…250 ***This menu is used to either create new or modify existing channels (0 through 250) so that they can be accessed from MR/Channel Mode**
26	Delete - Delete a memory channel	MENU+26		000…250 ***This menu is used to delete the programmed information from the specified channel (0 through 250) so that it can either be programmed again or be left empty.**
27	Alarm Mode - Alarm Mode	MENU+27		Site: Sounds alarm through your radio speaker only Tone: Sending alarm tone Code: Sending alarm code
28	SEEK CTC -Scan of frequencies with CTCSS	MENU+28		67.0HZ,…,254.1HZ ***Automatic stop after receiving the CTCSS signal**

29	SEEK DCS -Scan of frequencies with DCS	MENU+29		D023N,…,D754I ***Automatic stop after receiving the DCS signal**
30	TAIL - Squelch Tail Elimination	MENU+30		On Off ***This function is used eliminate squelch tail noise between handhelds that are communicating directly (no repeater). Reception of a 55 Hz or 134.4 Hz tone burst mutes the audio long enough to prevent hearing any squelch tail noise.**
31	ROGER - Roger Beep	MENU+31		Off On ***Sends an end-of-transmission tone to indicate to other stations that the transmission has ended.**
32	R-TONE–Repeater Tone	MENU+32		1000Hz/1450Hz/1750Hz/2100Hz ***To send out a repeater tone; You hold down the [PTT] + [LAMP/MONI] key.**