

TL-50

LUTHOR[®]
TECHNOLOGIES

DUAL BAND VHF/UHF
TRANSCEIVER

VHF / UHF
144 / 430 MHz

USER'S MANUAL

CE 0700!




We want to appreciate the confidence shown by purchasing this dual band transceiver **LUTHOR TECHNOLOGIES model TL-50**. This transceiver offers an innovative design in terms of technology and multi-functionality. Its high quality and extensive features make it one of the best equipments in its field, we trust in your total satisfaction with your expectations and communication needs.

In the design of **TL-50** every effort, excitement and professionalism has been made to finally reach the obtained result, an **EASY HANDLING DUAL BAND** VHF/UHF transceiver with a **RELIABILITY** only reachable by the best worldwide manufacturers.

An important sector's professional team has taken part in its development, even though maybe the newest aspect has been joining forces with different user profiles to capture the needs of many groups. Besides the transceiver's **QUALITY** and **RELIABILITY**, the main concern was to get an equipment than can be used both by experienced users in this kind of devices, and by beginners with any kind of experience, for that reason the **TL-50 EASY HANDLING** is brilliantly distinguished.

Please read carefully the following manual before using the transceiver in order to guarantee the equipment's maximum performances.

The use of the symbol  shows that this equipment it's under use restrictions in certain countries.

Countries where the use of this equipment is permitted, without prejudice that in any of them their administration request a licence, an authorisation or indicates some restrictions. In case of doubt we recommend you to request the competent authority of the country where you intend to use this equipment.

AT	BE	DK	FI	FR	DE	GR	IS	LT	MT	PL
IE	IT	LI	LU	NL	NO	PT	ES [*]	SK	SI	
SE	CH	GB	CY	CZ	EE	HU	LV	BG	RO	

*ES: For using this transceiver, the user must have a **personal amateur radio licence**.

The use of amateur radio transceivers is allowed within the frequencies assigned for an amateur use: that is 144-146 MHz on VHF, 430-440 MHz on UHF and both on dual band transceivers.

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Cautions and practical advices

△ Both the transceiver and the elements supplied with it are not toys, and as you can see later on this text of compulsory reading for the user, prior to unpacking the equipment and its accessories detailed below, you should consequently keep them out of: children's, persons with reduced cognitive capacity, and domestic or wild animals reach.

△ Any repair must be made only for qualified personal, in case of any problem in the equipment or any of its components you must contact your dealer or a professional and qualified technical service.

△ Under no circumstances disassemble, modify or manipulate the transceiver, the battery or the charging elements. Apart from the physical hazard that this implies for the user, the equipment and the accessories would lose their warranty.

△ The inappropriate handling of the transceiver or its accessories, could make change any of the technical features of them, in such a way that might affect their operation, the equipment's security, the user's physical integrity or the technical parameters, which may affect the features as designed, manufactured and marketed. In those cases the user shall be solely responsible for all the disadvantages and liquidated damages that might result of this action, both the manufacturer and the dealer shall be relieved of such liability.

△ Do not use the transceiver for any purpose other than it was designed for.

△ Do not use the transceiver if you see deterioration or breakage in any of its parts. Do not hit the equipment or the battery and by all means avoid the risk of falling that may damage it.

△ Do not expose the product to extremely high temperatures up to 45° or temperatures below 0°. That could significantly affect its operation and the battery could even ignite or explode (read carefully the cautions and practical advices for batteries described in detail below in this manual).

△ Do not place the transceiver or the battery above heating sources such as radiators, heaters, etc. that might seriously damage the equipment or the battery with the consequent risk of malfunctioning or overheating of them causing a burn down or an explode.

△ Do not use or charge both the transceiver and the battery if they are wet. Make sure that

they are completely dry before using it or charging the battery. Neither use the equipment with your hands wet.

△ Do not supply the equipment with a different tension than the one indicated by the manufacturer. Neither use a different battery than the one supplied by the manufacturer for this equipment. It might cause a burn down or an explode. Do not following this advice will carry an important risk for both the equipment and the user.

△ Do not use the transceiver during a thunderstorm (lightning storm), you would be expose yourself to a potential risk and danger of serious injuries or even the death.

△ For cleaning the transceiver and its accessories make sure is turned off, use a damp cloth (not wet). Do not use liquids, detergents nor any other chemical substance. Do not clean with a dry cloth in order to avoid the creation of static electricity.

△ Do not use the transmission button PTT if is not necessary.

△ An extended transmission could lead to transceiver's or battery's overheating, causing a transceiver's failure, burns or even the battery's explosion. Take care specially if you change the battery, it is not recommended until the temperature has significantly reduced.

△ Do not use the transceiver in any susceptible of flammable or potentially explosive environment. Do not use the device specially on petrol stations, chemical industries, explosives factories, ammunition warehouses, close to combustibles, chemical products, storage silos, tank lorries with dangerous goods, in presence of gas, nor in demolition areas. For most of those scenes are some specially designed and authorised transceivers that can be used without any risk, consult your dealer.

△ Do not use the transceiver in hospitals nor close to medical equipments that can suffer interferences caused by radio frequencies. If you use medical equipments, get in contact with the manufacturer to ensure that the equipments are protected from the radio frequencies.

△ Do not use the transceiver close to a pacemaker. Do not use the device in a distance less than 30 centimetres from a pacemaker, since the device can interfere with it and result in a serious accident. To minimise the possible interference with a pacemaker, use the device on the opposite side of the body from the pacemaker location.

△ Turn off the transceiver when you board an aeroplane. The use of electronic devices on

board of an aeroplane is restricted and subjected to the rules applied to those devices. It can interfere with the navigation electronic instruments of the aeroplane. In case of doubt ask the crew members about the possible restrictions of using the transceiver also in other kind of public transports like trains, ships, etc.

⚠ Do not use the transceiver if you are driving any kind of vehicle. Concentrate yourself exclusively on driving. In addition to infringe traffic laws, you could put passengers, street users and your security, at serious risk.

⚠ In case of leaving the transceiver, leave it on a stable location. Giving a special attention on vehicles so that the device do not slow down the driving. Never place the transceiver in the operating range or on the inflatable protection systems (Airbag), because in case of a protection system activation, the transceiver will be throw out with at high speed and strength and could hit the driver or passengers with serious or lethal results.

⚠ On vehicles, it is possible that the transceiver could interfere or be interfered due to radio frequencies. That could cause the wrong operation of vehicle's electronic equipments or otherwise, the transceiver could be the interfered one. In this case, keep in contact with your dealer, technical service or manufacturer to report this abnormality. Keep special attention in case of electric or hybrid vehicles and prior of using the transceiver ask the manufacturer of this kind of vehicles.

⚠ When walking or moving, use the transceiver with caution to avoid physical risks of yourself and other people around.

⚠ To guarantee a greater performance of the transceiver's microphone and that the sound clearly arrives to your interlocutor, when you talk, make it keeping the transceiver between 5 and 10 centimetres from your mouth.

⚠ For connecting accessories like earphones, speakers, programming cables, etc. always turn off the transceiver previously. Once installed the accessory turn it on again. Use the manufacturer recommended accessories.

⚠ Prior to using earphones or micro-earphones, check the transceiver's volume, a high volume level will damage the ear. A prolonged use of those accessories could cause audition's harm: auditive capacity degradation, vertigo, dizziness, etc. that's why it is recommended to use a suitable volume and not extending its use for a long time, taking breaks and alternating the ear.

⚠ Please pay special attention to the use of transceiver's external accessories like earphones or micro-earphones, etc. The cable used for those accessories could get caught up on machinery, vehicles, etc. causing the consequent transceiver's or accessory material risk or even pose a danger the user's physical integrity. This applies also to cases for protecting the transceiver or the transceiver itself when using the belt clip.

⚠ While using the transceiver avoid the contact of the antenna with your eyes, your face or other parts of your body. Keep the antenna in a vertical position and far from your body during transmission, so the transceiver will give its maximum performance in addition to your physical integrity.

⚠ Do not take nor grab your transceiver through the antenna, making that can cause damages both to the antenna and the transceiver. Besides the bad operation of the equipment can cause physical damages to the user or to others.

⚠ Do not use the transceiver if the covering from the antenna is damaged, immediately replace the antenna if is a removable one or contact your authorised technical service if is a fixed antenna. Do not taking this advice into account can cause burns for radio frequency to the user.

⚠ The cards and documents with a magnetic band, as credit, telephone or medical cards, savings books, etc. can be damaged due to the transceiver's radio frequency. Likewise, take care with information's storage or memory devices, those could be damaged by the transceiver's radio frequency.

⚠ When using the transceiver in public places try not to disturb the people around you.

Cautions and practical advices for the battery and the charger

- △ This transceiver is supplied with a Lithium-Ion (Li-Ion) battery.
- △ The excessive battery's overheating can cause the battery to ignite or explode with the resulting risk of serious physical damages or even the death. Avoid exposing it to temperatures up to 45°.
- △ Be careful with the equipment and specially with the battery. A hit could damage the equipment or the battery and if the worst comes to the worst the explosion or burn of the battery.
- △ If you see a deterioration, a hit or a crack on the battery cover do not use it and replace it immediately. If you do not make it the battery could cause damages to the equipment or the user because of ignite or explode. Be particularly careful if from inside the battery leaks out any kind of liquid or another material, that could cause chemical burns on your skin or your eyes, in that case contact a doctor immediately for advice on how to proceed and go to the nearest emergency unit.
- △ **SERIOUS DANGER:** under no circumstances short-circuit or short across the battery terminals, that could irreversibly damage the battery and if the worst comes to the worst the explosion or burn of the battery with the possible physical damages for the user, that could be extremely serious injuries or even the death. Consequently you must:
 - Transport the equipment properly so that the terminals can not short-circuit accidentally.
 - Do not carry it in your pocket with metallic objects like keys, coins, etc.
 - Do not place the equipment with its terminals making contact on a metallic, wet or conductive surface, that will cause a short-circuit of the terminals.
 - Avoid the contact of the equipment and the battery with water or conductive liquids.
 - Do not lick, bite or touch with your wet hands the battery terminals. No utilice la batería suministrada por el fabricante para otro transceptor que no sea

con el que se suministra. No seguir esta advertencia conlleva un importante riesgo de incendio o explosión, pudiendo dañar gravemente tanto el equipo como a las personas a su alrededor.

⚠ Do not use the supplied battery by the manufacturer for another transceiver than the one supplied. Do not following this advice implies an important risk of ignite or explode, and could seriously damage both the equipment and other people around.

⚠ Do not apply a soldering iron on the battery terminals, could cause the battery overheating with the consequent risk of suffering a serious accident.

⚠ Remember that inside a vehicle could reach extreme heat or cold temperatures, in one of those situations the battery could ignite or explode.

⚠ Never charge the battery with another charger than the one original supplied by the manufacturer. The charger is specific for the battery's technology. Using another charger will damage the battery and could cause the battery to ignite or explode with the consequent risk of suffering a serious accident.

⚠ Both the battery and charger contacts must be at all times clean. A bad maintenance of those elements and its deterioration could cause a bad operation, overheat, ignite or explode from the equipment.

⚠ Do not leave the transceiver or the battery close to magnetic fields. It is possible that this cause the bad operation of the transceiver or the battery. It is also possible the battery's discharge due to the action of this magnetic fields.

⚠ In case of not using the transceiver during a long period of time of weeks or months, it is strongly recommended to take off the Li-Ion battery and store it on a cool and dry place, without direct sun light and with a temperature between 5 and 25 degrees. Never store the battery completely discharged or with only a low load, that could cause an irreparable damage to the battery to the point of becoming unusable. It is also inadvisable to store the battery for a long period of time with 100% of the load, the ideal is store it with a 40% of the load, this will extend the battery's working life.

⚠ After a long period of time without being used, the Li-Ion batteries gradually lose its load. Whereby try to use it and charge it with a certain frequency in order to extend the battery's working life.

- ⚠ Do not use the charger/feeder if the cables or plugs are damaged. That could cause electrical shocks, ignites and explodes. Dispose the product and buy a new one from your dealer.
- ⚠ Do not use the charger/feeder if the socket outlet is damaged or loose. That could cause electrical shocks, ignites and explodes. In that case, call a professional electrician to solve the problem.
- ⚠ During the charging process do not touch none of its components nor the battery. That could cause electrical shocks with serious security risk or even the death.
- ⚠ Do not touch the charger, any of its components nor the battery with wet hands nor your bare feet. That could cause electrical shocks with serious security risk or even the death.
- ⚠ Do not short-circuit the charger/feeder terminals. That could seriously damage the system and void it or even catch on fire with a serious risk for the security of the people and facilities where the equipment is located.
- ⚠ The Li-Ion batteries have a circuit available that cuts the energy supply once the charge is completed. Usually the charger shows this situation through a LED indicator. But facing the possibility of an error or an overheating both on the charger and on the battery, is appropriate not to let the charger permanently connected to the wall outlet and even less with the battery installed. Once the charge is completed it is strongly recommended to quit the battery from the charger and disconnect it from the electricity supplies.
- ⚠ During the charging process, if any of its components: transceiver, battery, cables, charger, wall feeder, etc. will give off smoke or a strange smell, with great caution disconnect the charger from the wall outlet and remove the transceiver or the battery in case is being charged alone. If the battery is installed on the transceiver remove it immediately and do not use the equipment. Get immediately in contact with your dealer or technical service.
- ⚠ Do not cover nor put any kind of objects over the transceiver, the battery, the charger, the feeder or the cables. That could cause an overheating or damages on the elements with the consequent risk of burn or explosion.

Main features

Dual band, dual display and dual standby
 128 memory channels
 FM Radio reception with 20 radio memories
 Selectable channel spacing (15 / 12.5 KHz)
 VOX or hands free function
 50 CTCSS analogical and 210 DCS digital tones
 Frequency scanning with CTCSS / DCS
 Spoken low battery warning
 Emergency SOS function
 Repeater shift function
 ANI code
 DTMF functions and remote kill / stun
 Talk-around function
 Reverse frequency function
 Compression function and 8 encryption groups



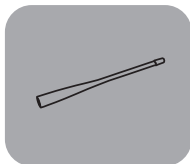
Unpacking of the equipment and content

Unpack carefully the content of your transceiver's box. We recommend you to verify the elements listed in the following table before discarding the package. If some element is missing or it had been damaged due to the shipping, please contact your **LUTHOR TECHNOLOGIES** dealer as soon as possible.

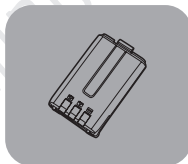
Supplied accessories



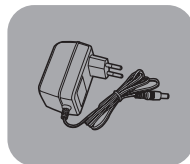
TL-50
Transceiver



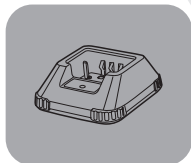
Antenna



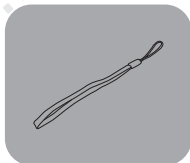
Li-Ion Battery
TLB-450



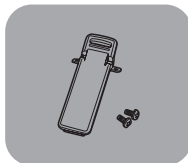
Charger adapter
TLC-360/1



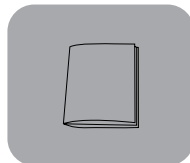
Desktop charger
TLC-350



Hand strap



Belt-clip
TLP-150



User's manual

Battery charge

This device is equipped with a Lithium-Ion battery (also known as Li-Ion or simply Lithium battery). The main features of these batteries are lightness, no memory effect and a high energetic capacity in a reduced size. It is necessary to take some cautions with the Lithium batteries, therefore we recommend you to carefully read the cautions and advices regarding the Lithium batteries and the charger in the section “Cautions and practical advices for the battery and the charger” located from pages 10 to 12.

To carry out the charge of the batteries, the equipment is supplied with an intelligent charger that identifies the battery charge to recharge it only during the necessary time to complete its full capacity. In the case where the battery is totally flat, the full capacity will be reached in less than 6 hours.

The charging LED indicator will show you the charging status:

Led indicator	Status
Red	Charging
Green	Completed

Advices:

- The battery is not completely factory-charged, please, charge it before prior to first use.
- The battery will reach its maximum capacity, once it is two or three times charged and discharged. When the battery capacity is low, please, charge or change the battery.
- When the battery load duration is too low even though had been completely charged, the battery is exhausted, please, replace it for a new one.

⚠ DANGER: do not charge the battery with another charger than the original and do not try to charge another battery different from the one provided by the brand for this charger. Do not following this advice implies an important risk of ignite or explode, and could seriously damage both the equipment and other people around or even the death.

Accessories installation

Battery installation

1. Fit the Lithium battery on the guide and slide it towards the upper transceiver's part – in the arrow's direction – to completely fix it. (Figure 1)
2. To remove the battery, press the subjection button and slide the battery towards the lower transceiver's part – in the arrow's direction – to remove it completely. (Figure 2)

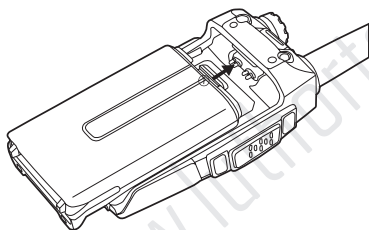


Figure 1

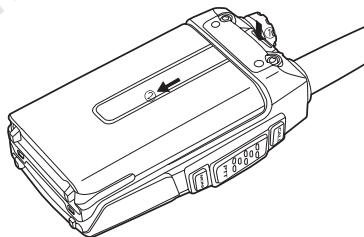


Figure 2

Antenna installation

The supplied high reach antenna offers great features on the transceiver complete VHF / UHF frequency range. To install the supplied antenna, hold it on the base and make it turn clockwise into the transceiver's top connector until it will be totally fixed.

Do not tighten it so strong.

To uninstall the antenna, hold it on the base and make it turn counter-clockwise.

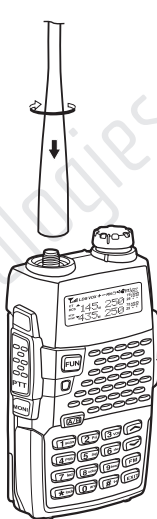


Figure 3

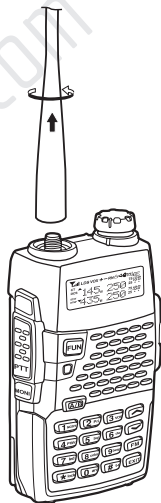


Figure 4

Notes: Never transmit without having the antenna installed. When you install the supplied antenna, never hold it on the upper side to screw it on the transceiver's top connector, otherwise you could broke the antenna.

Belt clip installation

Line up both holes on the the transceiver's back side with the clip ones, fix the clip to the transceiver with the two supplied screws (M2.5x5). Unscrew the screws to remove the clip.

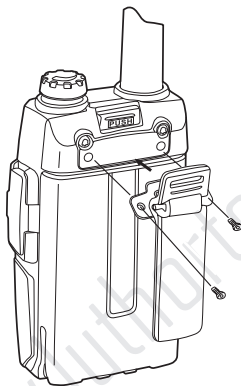


Figure 5

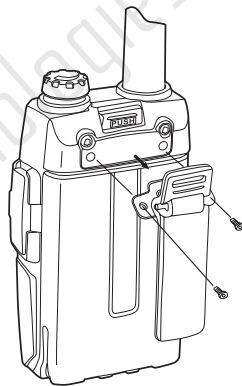


Figure 6

External accessory installation

Open the connections cover placed on the right lateral side, and insert the accessory connection.

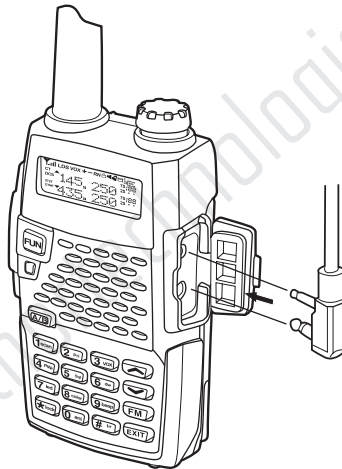
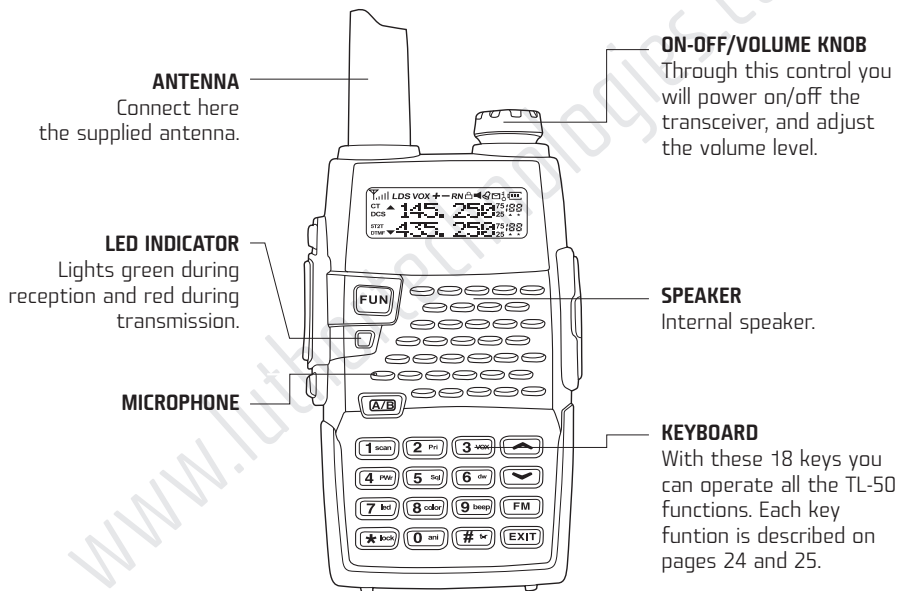


Figure 7

Note: This plug allows connecting a micro-speaker, earphone or programming cable. In case of external speaker malfunction, please, use the built-in one.

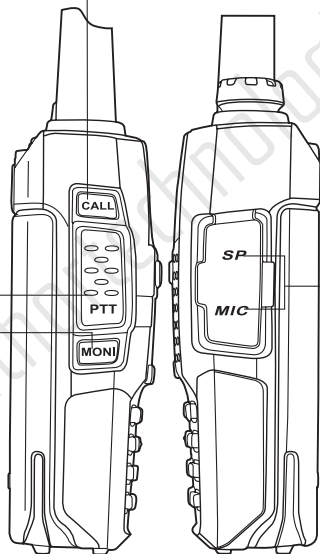
Transceiver's description



CALL
Enables the 1750Hz tone call to access repeater and transmit DTMF.

PTT
Press To Transmit and release to receive when your transmission is done.

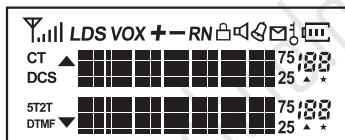
MONI
Keep pressed to disable squelch allowing to hear very weak signals close to background noise.








MIC/SP
Allows connecting external accessories like: micro-speaker, earphone or programming cable.

Introduction to display's icons

You can see different icons on the display when the radio is power on. The following table will help you to identify the meaning of display's icons.



	Signal's power level, power meter
L	Low power ON
D	Dual watch / standby ON
S	Battery save function ON
VOX	VOX function ON
+ -	Frequency shift direction
R	Reverse frequency ON
N	Narrow band ON
	Keyboard lock ON

	Squelch function ON
	Beep function ON
	Call or message received identification
	Voice encryption ON
	Battery level indicator
CT	CTCSS ON
DCS	DCS ON
DTMF	DTMF ON
▲	A band in use indicator
▼	B band in use indicator
75 25	Decimal frequency for frequency steps
188	Channel number / frequency step indicator
▲	Busy channel indicator
★	Scan function available in channel mode

Keys functions

	FUN	A/B	^	v	EXIT
Pressing the key	Enter the menu mode/ confirm the selection	Change between A or B operating bands	Select upper item, channel or frequency	Select lower item, channel or frequency	Change between VFO mode and MR mode / exit the setting
Pressing and turning on the transceiver	Enter reset mode	No action	No action	No action	Enter channel delete



	1 SCN	2 PRI	3 VOX	4 PWR	5 SQL
Pressing the key	Frequency / Channel #1	Frequency / Channel #2	Frequency / Channel #3	Frequency / Channel #4	Frequency / Channel #5
Pressing FUN key	Enter scan menu	Enter priority channel menu	Enter VOX menu	Enter high / low power menu	Enter squelch menu

	6 SW	7 LED	8 CLR	9 BEEP	0 ANI
Pressing the key	Frequency / Channel #6	Frequency / Channel #7	Frequency / Channel #8	Frequency / Channel #9	Frequency / Channel #0
Pressing FUN key	Enter dual standby menu	Enter LED menu	Enter display colour menu	Enter beep menu	Enter ANI menu

	★ LOCK	# T-R	FM RDS
Pressing the key	During channel name edition, one cursor position to the left	During channel name edition, one cursor position to the right	Enter or exit FM radio mode
	Press and release to lock / unlock the keyboard	Press and release to activate the reverse frequency	Pressing FUN + FM RDS keys to activate emergency alarm

Working modes

Frequency mode (VFO)

Using this mode, you can use the  or  keys to change the frequency or introduce the frequency number directly through the numeric keyboard, and store the channel.

Frequency-Channel mode (MR)

When there is at least one memory channel memorized and being in frequency mode (VFO), press the  key to enter MR mode.

The frequency will be shown in the display and the channel number will be indicated on the right side.

When the channel name editing option is on and the channel name is edited, the name of the channel will be displayed.

Please, consult the 24, 37 and 38 menus description.

Channel mode (CH)

When there is at least one memory memorized, you can operate in CH mode.


The channel number will be shown in the display. Please, consult the 37 and 38 menus description.

FM Radio mode (FM)

The TL-50 provides a FM radio with the 88.00 – 108.00MHz frequencies.



In this mode, you can directly select the wished FM frequency, search the frequency range and store your favourite radio stations. Press the  key to exit the FM radio mode.

Menu mode

Press the  key to enter the menu mode, there is a total of 39 menu items. Please, consult the "Menu function list" section.

Reset mode

While keeping pressed the **FUN** key power on the transceiver to enter the reset mode, then press the **FUN** key again to confirm.

1. Press the  or  keys to select between VFO/FULL.
2. **VFO:** reset all the frequency mode settings.
3. **FULL:** reset all the frequency and channel mode settings.





Menu function list

N°	Display and function	Selectable parameters	Function's description
1	SCAN	/	Frequencies / Channels search
2	TX.SEL	EDIT / BUSY	Selection of priority channel
3	VOX	1 - 9	VOX (hands free) sensitivity level
4	POW	LOW / HIGH	High or Low transmission power
5	SQL	0 - 9	Squelch sensitivity level
6	D.WAIT	ON / OFF	Dual watch / Standby
7	LED	ON / AUTO / OFF	Display light mode
8	LIGHT	1 / 2 / 3	Display colour setting
9	BEEP	ON / OFF	Keyboard's beep sound setting
10	ANI	ON / OFF	ANI code activation
11	TOT	OFF / 30 / ... / 270	Time Out Timer setting
12	BCLO	OFF / WAVE / CALL	Busy channel lock setting
13	VOX.SW	ON / OFF	VOX setting
14	ROGER	ON / OFF	Transmission's end notice setting
15	DW	ON / OFF	Dual watch / Monitor setting
16	RX.SAV	ON / OFF	Reception's energy save setting
17	SCAN.S	TO / CO / SE	Signals search mode setting

N°	Display and function	Selectable parameters	Function's description
18	AUTOLK	ON / OFF	Automatic keyboard lock setting
19	VOICE	ON /OFF	English voice guide setting
20	OPNSET	OFF / DC / MSG	Display information when power on
21	DC VOLT	/	Shows the battery voltage
22	MSGSET	-1A, @	Display message when power on
23	OFFSET	0.000 - 99.975MHz	Frequency shift value
24	CH.NAME	-1A, @	Edition of channel name
25	C-CDC	OFF / 67.0 / D023N	CTCSS/DCS tones in TX/RX
26	R-CDC	OFF / 67.0 / D023N	TCSS/DCS tones in RX
27	T-CDC	OFF / 67.0 / D023N	CTCSS/DCS tones in TX
28	S-D	+ / - / OFF	Frequency shift direction setting
29	STEP	2.5K / 5K / ... / 100K	Frequency steps setting
30	N/W	WIDE / NARROW	Bandwidth: Wide / Narrow setting
31	SEEK 67.0	/	CTCSS tones search
32	SEEK D023N	/	DCS tones search
33	APRO	OFF / Compndr / Scrm b 1 - 8	Selection of audio mode
34	DTMF ID	/	DTMF identifier query
35	LOCK MD	ALL / PTT / KEY / K+S	Keyboard lock mode










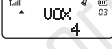







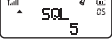



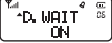


N°	Display and function	Selectable parameters	Function's description
36	LAMP T	1s ... 10s	Display light time setting
37	A.DISP	Freq / Name / Channel	A Band visualization mode
38	B.DISP	Freq / Name / Channel	B Band visualization mode
39	RPT MD	OFF / Reverse / Talkarn	Reverse frequency and talk-around setting

















































Menu operation


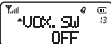






































































1. In standby mode, press the **FUN** key to enter into menu setting, "MENU" will be shown on the display.
2. Press the  or  keys to select the wished menu's item, the item's current setting will be shown on the display.
3. Press the **FUN** key to enter ant then press the  or  keys to select the wished setting.
4. Press the **FUN** key to confirm.
5. Press twice the **EXIT** key to exit menu mode and return to standby mode.














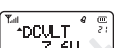



























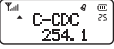







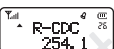















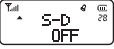














Menu's configuration








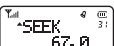




























Item N° and name	How to enter	Display text	Parameter selection	Parameter settings	Confirm	Return to standby mode
1.Frequency/ Channel search	 FUN + 1 SCAN		FUN	Press  or  to change search direction	Press FUN to start search	Press twice EXIT to exit
2.Priority channel	 FUN + 2 PRV		FUN	Press  or  to select available values	EDIT / BUSY	Press twice EXIT to exit
3.VOX level setting	 FUN + 3 VOX		FUN	Press  or  to select available values	VOX level: 1 - 9	Press twice EXIT to exit
4. Transmission power	 FUN + 4 PRV		FUN	Press  or  to select available values	High / Low	Press twice EXIT to exit
5.Squelch level	 FUN + 5		FUN	Press  or  to select available values	SQL level: 0 - 9	Press twice EXIT to exit
6.Dual Watch / Standby	 FUN + 6		FUN	Press  or  to select available values	ON / OFF	Press twice EXIT to exit

















Item N° and name	How to enter	Display text	Parameter selection	Parameter settings	Confirm	Return to standby mode
7.Display light	 FUN + 7 led		 FUN 	Press  or  to select available values	ON / AUTO / OFF	 FUN  Press twice EXIT to exit
8.Display colour	 FUN + 8 color		 FUN 	Press  or  to select available values	1 / 2 / 3	 FUN  Press twice EXIT to exit
9.Keyboard's beep sound	 FUN + 9 beep		 FUN 	Press  or  to select available values	ON / OFF	 FUN  Press twice EXIT to exit
10.ANI code activation	 FUN + 1 scan 0 ani		 FUN 	Press  or  to select available values	ON / OFF	 FUN  Press twice EXIT to exit
11.Time Out Timer	 FUN + 1 scan 1 scan		 FUN 	Press  or  to select available values	OFF / 30... / 270s	 FUN  Press twice EXIT to exit
12.Busy channel lock	 FUN + 1 scan 2 pri		 FUN 	Press  or  to select available values	OFF / WAVE / CALL	 FUN  Press twice EXIT to exit

Item N° and name	How to enter	Display text	Parameter selection	Parameter settings	Confirm	Return to standby mode
13.VOX setting	 FUN + 1 scan / 3 VOX		   	Press  or  to select available values	ON / OFF	    Press twice EXIT to exit
14.Transmissions's end notice	 FUN + 1 scan / 4 PW		   	Press  or  to select available values	ON / OFF	    Press twice EXIT to exit
15.Dual Watch / Monitor	 FUN + 1 scan / 5 SW		   	Press  or  to select available values	ON / OFF	    Press twice EXIT to exit
16.Reception's energy save	 FUN + 1 scan / 6 SW		   	Press  or  to select available values	ON / OFF	    Press twice EXIT to exit
17.Signals search mode	 FUN + 1 scan / 7 SW		   	Press  or  to select available values	TO / CO / SE	    Press twice EXIT to exit
18.Automatic keyboard lock	 FUN + 1 scan / 8 color		   	Press  or  to select available values	ON / OFF	    Press twice EXIT to exit

Item N° and name	How to enter	Display text	Parameter selection	Parameter settings	Confirm	Return to standby mode
19.English voice guide	 FUN + 1 <small>scan</small> / 9 <small>beep</small>		FUN 	Press  or  to select available values	ON / OFF	FUN  EXIT to exit
20.Display information when power on	 FUN + 2 <small>PI</small> / 0 <small>ant</small>		FUN 	Press  or  to select available values	OFF / DC / MSG	FUN  EXIT to exit
21.Shows the battery voltage	 FUN + 2 <small>PI</small> / 1 <small>scan</small>		FUN 	Press  or  to select available values	Show current voltage	FUN  EXIT to exit
22.Display message when power on	 FUN + 2 <small>PI</small> / 2 <small>PI</small>		FUN 	Press  or  to select available values	Editing welcome message	FUN  EXIT to exit
23.Frequency shift value	 FUN + 2 <small>PI</small> / 3 <small>VOX</small>		FUN 	Press  or  to select available values	0.0000 – 99.975MHz	FUN  EXIT to exit

Item N° and name	How to enter	Display text	Parameter selection	Parameter settings	Confirm	Return to standby mode
24. Edition of channel name	 FUN + 2 Pri → 4 Pwr →		 FUN →  Press  or  to select available values	Editing channel name	 FUN → 	Press twice EXIT to exit
25. CTCSS/DCS tones in TX and RX	 FUN + 2 Pri → 5 →		 FUN →  Press  or  to select available values	OFF / QT / DCS	 FUN → 	Press twice EXIT to exit
26. CTCSS/DCS tones in RX	 FUN + 2 Pri → 6 →		 FUN →  Press  or  to select available values	OFF / QT / DCS	 FUN → 	Press twice EXIT to exit
27. CTCSS/DCS tones in TX	 FUN + 2 Pri → 7 →		 FUN →  Press  or  to select available values	OFF / QT / DCS	 FUN → 	Press twice EXIT to exit
28. Frequency shift direction	 FUN + 2 Pri → 8 →		 FUN →  Press  or  to select available values	OFF / + / -	 FUN → 	Press twice EXIT to exit
29. Frequency steps	 FUN + 2 Pri → 9 →		 FUN →  Press  or  to select available values	2.5K / 5K / ... / 100K	 FUN → 	Press twice EXIT to exit

Item N° and name	How to enter	Display text	Parameter selection	Parameter settings	Confirm	Return to standby mode
30. Bandwidth Wide/Narrow 	FUN + 3 VOX 0 <small>OFF</small>	 N/W WIDE	Press  or  to select available values	Wide / Narrow	FUN  	Press twice EXIT to exit
31. CTSS tones search 	FUN + 3 VOX 1 <small>SCAN</small>	 *SEEK 67.0	Press  or  to change search direction	Press FUN to start search	FUN  	Press twice EXIT to exit
32. DCS tones search 	FUN + 3 VOX 2 <small>PTT</small>	 *SEEK D023N	Press  or  to change search direction	Press FUN to start search	FUN  	Press twice EXIT to exit
33. Audio mode 	FUN + 3 VOX 3 <small>VOX</small>	 APRD OFF	Press  or  to select available values	OFF / Compndr / Scrmb 1-8	FUN  	Press twice EXIT to exit
34. DTMF identifier query 	FUN + 3 VOX 4 <small>PTT</small>	 DTMF ID	Press  or  to select available values	DTMF identifier query	FUN  	Press twice EXIT to exit
35. Keyboard lock mode 	FUN + 3 VOX 5 <small>OFF</small>	 *LOCK MD ALL	Press  or  to select available values	ALL / PTT / KEY / K+S	FUN  	Press twice EXIT to exit

Item N° and name	How to enter	Display text	Parameter selection	Parameter settings	Confirm	Return to standby mode
36.Display light time	 FUN + 3 <small>WOK</small> 6 <small>div</small>		FUN	Press  or  to select available values	1s / 2s / ... / 10s	Press twice EXIT to exit
37.A Band visualization mode	 FUN + 3 <small>WOK</small> 7 <small>led</small>		FUN	Press  or  to select available values	FREQ / NAME / CHANNEL	Press twice EXIT to exit
38.B Band visualization mode	 FUN + 3 <small>WOK</small> 8 <small>color</small>		FUN	Press  or  to select available values	FREQ / NAME / CHANNEL	Press twice EXIT to exit
39.Reverse frequency and talk-around	 FUN + 3 <small>WOK</small> 9 <small>loop</small>		FUN	Press  or  to select available values	OFF / REVERSE / TALKARN	Press twice EXIT to exit

Function's detailed descriptions

Frequency scanning and scanning mode (SCAN and SCAN.S - MENU 1 and 17)

Function: in VFO / MR / CH modes, the TL-50 allows searching in the entire operative band and in the stored channels.

Enter into menu 1 and press the **FUN** key to start the search.

Once the scanning has started, press the  /  keys to change scan direction. The scanning will stop when a signal has found, press the PTT button to stop the scanning; press the MONI button to stop temporally the scanning; press the **FUN** key to exit the scanning mode.

The scanning function is basically the same for every one of the different modes. Before starting, take a moment to select the mode you prefer the search to stop when founding a signal.

Enter into menu 17 to select the setting for the scanning mode. The default value is TO.

In VFO mode there are three scanning options available:

TO: in this mode, the scanning will stop in the signal found, and will stay in this signal for a while. If you do not make any action to cancel the scanning during this period of time, the scanning will restart although the signal is still active.

CO: in this mode, the scanning will stop in the signal found, and will stay in this signal until it ends. Once the signal ends, the scanning will restart.

SE: in this mode, the scanning will stop in the signal found, and will not restart automatically, you will have to restart manually the scanning if you want it to continue.

Selection of priority channel (TX.SEL - MENU 2)

Function: allows transmitting in the sub-band although you are using the operating band.

Enter into menu 2 to select the priority transmission band. The default value is: EDIT.

EDIT: you will transmit on the priority channel.

BUSY: you will transmit on the last channel used for transmitting.

VOX sensitivity level and activation (VOX and VOX.SW - MENU 3 and 13)

Function: the VOX function allows an automatic transmission / reception based on the voice reception through the built-in microphone. With the VOX on, you do not need to press the PTT button to transmit, and it is not necessary to use an external earphone with VOX to use this function.

Enter into menu 13 to activate the VOX function. The default value is: OFF.

When this function is on, the "VOX" icon will appear on the display.

Enter into menu 3 to set the VOX level. There are 9 available levels.

The higher the level is, the greater sensitivity you will have.

The TL-50 has a setting via software for adjusting a VOX delay time (a delay time for transmitting-receiving after you stop speaking).

The default value is: 2 seconds.

Transmission power (POW - MENU 4)

Function: allows selecting the High or Low transmission power depending on your environment and your needs. When you store memories, you can save the High or Low transmission power setting independent for each memory.

Enter into menu 4 to set the transmission power.

High: 5W

Low: 1W, when you select the Low power, the "L" icon will appear on the display.

Squelch sensitivity level (SQL - MENU 5)

Function: allows silencing the background noise when no signal is received. The squelch function not only makes the standby mode more pleasant but significantly reduces battery consumption.

Enter into menu 5 to set the Squelch level. The default value is: 5.

Dual standby (D.WAIT - MENU 6)

Function: allows receiving signals in other channel while you are in the operating channel. Allows

monitoring both channels signals at the same time.
Enter into menu 6 to activate the dual standby. The default value is: ON.

Display light (LED - MENU 7)

Function: allows adjusting the display light.

Enter into menu 7 to set the display light. The default value is: AUTO.

ON: the display light will be always on.

AUTO: the light turns on when pressing any key and 3 seconds later turns off automatically.

OFF: the display light will be always off.

Display colour (LIGHT - MENU 8)

Function: allows selecting the display brightness.

Enter into menu 8 to set the display colour. The default value is: 2.

1: Purple.

2: Orange.

3: Blue.

Keyboard's beep sound (BEEP - MENU 9)

Function: activate/deactivate the keyboard's beep sound.

Enter into menu 9 to set the keyboard's beep sound. The default value is: ON.

ANI code (ANI - MENU 10)

Function: sending the ANI code always when transmitting, the receiving radios can see it on the display in case of having also the ANI code function.

Enter into menu 10 to activate the ANI code. The default value is: OFF.

Transmission time timer (TOT - MENU 11)

Function: gives a security lock, that limits the transmission to a maximum pre-programmed time.

Allows preserving the battery not permitting too lengthy transmissions, and in case of a PTT button block it will prevent both interfering other users and exhausting the battery. Enter into menu 11 to activate the TOT function. The default value is: OFF.

Busy channel lock (BCLO - MENU 12)

Function: prevents the user from transmitting if the radio is receiving a signal strong enough to brake the squelch. In frequencies where different transceivers using different CTCSS or DCS codes can be actives, this function prevents to accidentally interrupt their communications (because the transceiver can be silenced by its own tone decoder).

Enter into menu 12 to activate the BCLO function. The default value is: OFF.

OFF: turn off the transmission busy channel lock.

WAVE: the PTT button will not be functional only when the frequency to use is busy.

CALL: the PTT button will not be functional only when the frequency and the tone are the same.

Transmission's end notice (ROGER - MENU 14)

Function: the radio will emit a “beep” sound when the transmission ends.

Enter into menu 14 to activate the ROGER BEEP function. The default value is: OFF.

FM radio option (DW - MENU 15)

Function: allows monitoring a signal call while listening to FM Radio, so you will not lose any call.

Enter into menu 15 to activate the function. The default value is: OFF.

Reception's energy save (RX.SAV - MENU 16)

Function: this feature produces a considerable energy saving, but could not receive all entry data.



Enter into menu 16 to activate the RX.SAV function. The default value is: OFF.

Automatic keyboard lock (AUTOLK - MENU 18)

Function: to avoid accidentally changing the frequency or an involuntary transmission, the

keyboard and other buttons will be automatically locked.

Enter into menu 18 to activate the AUTOLK function. The default value is: OFF.

If the equipment is locked, press the  key to unlock it. If you want to lock it manually press the  key again.

English voice guide (VOICE - MENU 19)

Function: enable/disable English voice guide.

Enter into menu 19 to activate the VOICE function. The default value is: ON.

Display information when turning on (OPNSET and DC VLT and MSGSET - MENU 20 / 21 and 22)

Function: select the presentation mode when turning on and edit the welcome message.

Enter into menu 20 to activate the OPNSET function. The default value is: OFF.




OFF: shows the model's version.

DC: shows the battery voltage.

MSG: shows the welcome message.

Enter into menu 21 to check the battery voltage.

Enter into menu 22 to edit the welcome message, you can also edit it through the programming software.

Using the  /  keys you can select the desired letters, use the  /  keys to move the cursor.

Frequency offset (OFFSET and S-D - MENU 23 and 28)

Function: the repeater stations, normally located on top of the mountains or in any high locations, give a huge extension of the communication range for low power transceivers (handhelds and mobile stations).

In frequency (VFO) mode, you can adjust the value and the direction for the frequency offset.

Enter into menu 23 to select the frequency offset value.

Available values: 0.00 to 99.95 MHz.

Enter into menu 28 to set the frequency offset direction. The default value is: OFF.

Channel name show and edit (CH.NAME / A.DISPLAY / B.DISPLAY - MENU 24 / 37 / 38)

Function: show or hide the channel name and edit it in CH and MR modes.

Enter into menu 37 and 38 to show or hide the channel name.

Enter into menu 24 to edit the channel name, you can also edit it through the programming software.





Using the  /  keys you can select the desired letters, use the  /  keys to move the cursor.

Tones coding and searching (C-CDC, R-CDC, T-CDC, SEEK 67.0 and SEEK D023N - MENU 25, 26, 27, 31 and 32)

Function 1: use of the CTCSS / DCS tones.

Many repeaters require a very low frequency audio tone, to superimpose its signal for activating the repeater. That helps to prevent false repeater activations by radar or other transmitters spurious signals.

Enter into menu 25 / 26 / 27 to adjust the CTCSS / DCS tones in TX transmission and RX reception / in RX reception / in TX transmission.

1. Press the  key to select between CTCSS / DCS / OFF. After selecting CTCSS / DCS / OFF use the  /  keys to choose the particular group you need.
2. Press the  key to select the DCS tone direction.

The TL-50 has 50 CTCSS groups and 104 DCS normal / inverted groups.

CTCSS tones frequencies (Hz)

67.0	69.3	71.9	74.4	77.0	79.7
82.5	85.4	88.5	91.5	94.8	97.4
100.0	103.5	107.2	110.9	114.8	118.8
123.0	127.3	131.8	136.5	141.3	146.2
151.4	156.7	159.8	162.2	165.5	167.9
171.3	173.8	177.3	179.9	183.5	186.2
189.9	192.8	196.6	199.5	203.5	206.5
210.7	218.1	255.7	229.1	233.6	241.8
250.3	254.1	-	-	-	-

DCS tones frequencies DCS (Hz)

023	074	172	265	371	503	662
025	114	174	266	411	506	664
026	115	205	271	412	516	703
031	116	212	274	413	523	712
032	122	223	306	423	526	723
036	125	225	311	431	532	731
043	131	226	315	432	546	732
047	132	243	325	445	565	734

050	134	244	331	446	606	743
051	143	245	332	452	612	754
053	145	246	343	454	624	-
054	152	251	346	455	627	-
065	155	252	351	462	631	-
071	156	255	356	464	632	-
072	162	261	364	465	645	-
073	165	263	365	466	654	-

Function 2: Tones search.

In situations where you not know the CTCSS / DCS tone used by another station or stations, you can command the transceiver to hear the incoming signal and scan searching the used tone.

Enter into menu 31 / 32 to start the CTCSS / DCS tones search.

If any tone or code is not detected by the tone search, it will continue to search indefinitely. When this happens, could be why the other station is not sending any tone.

You can press the PTT button at any time to stop the search.

You can also press the MONI button during the search to hear the signal (muted) from the other station. When you release the MONI button, the tone search will resume.

The tone search works equally for VFO or MR modes.

Function 3: 1750Hz tone.

If repeaters in your country require a 1750Hz tone to access it (occurs mainly in Europe), you can keep pressed the CALL button during 2 seconds and the transmitter will be automatically activated, a 1750Hz audio tone will superimpose to the transmission. Once the access to the repeater is achieved, you should release the CALL button and press the PTT button to activate the transmission.

Frequency steps setting (STEP - MENU 29)

Function: adjust the frequency steps. Enter into menu 29 to set it.

Available values: 2.5 / 5 / 6.25 / 10 / 12.5 / 25 / 50 / 100 KHz.

Bandwidth setting (N/W - MENU 30)

Function: adjust the bandwidth.

Enter into menu 30 to set the bandwidth.

Available values: "WIDE" (25KHz) / "NARROW" (12.5KHz).

Selection of audio mode (APRO - MENU 33)

Function: the TL-50 has 8 encryption groups achieved adding different components to the original signal so that it will be difficult to obtain the original signal extraction. And its voice compression technology makes the signal to be heard more clearly in noisy environments.

Enter into menu 30 to set the compression mode and the encryption group.

Available values: OFF / COMPNDR / SCRMB1 – 8.

DTMF identifier query (DTMF ID - MENU 34)

Function: check the DTMF code identifier number.

Keyboard lock mode (LOCK MD - MENU 35)

Function: the TL-50 has different keyboard lock modes to satisfy your needs, including:

ALL: all the keys except the  key will be locked.

PTT: only the PTT button will be locked.

KEY: all the keys except PTT, CALL and MONI buttons will be locked.

K+S: all the keys except the PTT button will be locked.

Enter into menu 35 to set the keyboard lock mode.

Available values: ALL / PTT / KEY / K+S.

Display light time setting (LAMP T - MENU 36)

Function: set the display light time.

Enter into menu 36 to set the display light time.

Available values: 1s / 2s / ... / 10s.

Reverse frequency and talk-around (RPT MD - MENU 39)



Function: reverse frequency: the TX and RX frequencies will be interchanged.

Talk-around: the TX frequency will change to be the same than the RX frequency.

Enter into menu 39 to set the reverse frequency and Talk-around.



Advanced functions

Emergency alarm +


In standby mode, press the  key to enter into the menu, "MENU" will appear on the display; next press the  key to activate the emergency call function, the equipment will transmit an emergency call during 20 seconds, and next turns automatically to reception mode during 10 seconds, until you press the PTT button to exit.





Keyboard lock

In standby mode, press the  key during 2 seconds to lock or unlock the keyboard, the icon  will appear in the upper side of the display when the keyboard is locked.

Reverse frequency

In standby mode, keep pressed the  key during 2 seconds to enable or disable this function, the **R** icon will appear in the upper side of the display when activating this function. In this case, the radio transmission frequency turns into reception frequency and reception frequency into transmission frequency.








1750Hz tone

To access to repeater, keep pressed the  button during the time established by the repeater. The transmitter will be automatically activated, a 1750Hz audio tone will superimpose to the transmission. Once the access to the repeater is obtained, you should release  button and press PTT button to activate the transmission.

Storage and delete of memory channels

















Storage of a channel

In VFO mode, introduce the desired frequency directly through the numeric keyboard or select

one by pressing the  or  keys, next press the  +  keys, the channel digits will blink in the upper right side of the display, introduce the desired channel number through the numeric keyboard or select one by pressing the  or  keys, next press the  key to save the channel.

Note: after introducing the desired channel number, if it blinks, means that this channel is already occupied, you should choose a different one.

Example: to store the 430.325MHz frequency with CTCSS 151.4 on channel 05, the steps to follow are the following ones:

1. In VFO mode, introduce 4 – 3 – 0 – 3 – 2 – 5.
2. Press the  +   keys, or press  +  keys, next press the  key to confirm.
3. Press the  key to select the CTCSS mode, the display shows C-CDC 67.0.
4. Press the  or  keys to select 151.4, next press the  key to confirm.
5. Press the  key twice to exit.
6. Press the  +  keys, the digits in the upper right side of the display will blink.
7. Press the  or  keys to select or introduce 05 directly.
8. Press the  key to store the channel, the mode MR and the stored channel will be displayed on the display.

Y_{full} 430.325
430.350

Y_{full} C-CDC
OFF

Y_{full} C-CDC
67.0

Y_{full} MENU




Y_{full} MENU

Y_{full} 430.325
430.350

Y_{full} 430.325
430.350

Y_{full} 430.325
430.325

Delete of channels

1. In MR or CH modes, press the  key and power on the radio, "DEL ?" will appear on the display and the channel number blinks in the upper right side of the display.
2. Press the  or  keys or introduce the channel number you want to delete, next press

Y_{full} cr DEL ?

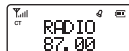
the **FUN** key to confirm.

3. After deleting, it will move to the next occupied channel, if you want to delete it, repeat the instructions.

FM Radio function

Activation / Deactivation the FM Radio.

In standby mode, press the **FM** key to activate the FM Radio mode, "87.00M" will appear on the display, press again the **FM** key again to deactivate FM Radio mode.



Note: in FM Radio mode, if you receive a signal, the transceiver deactivates the FM Radio mode, after five seconds, returns to FM Radio mode when the signal disappears.

Selecting the mode.

In FM Radio mode, press the **EXIT** key to change between the FM memories mode and the FM frequencies mode (this function is not available when there are no memory channels stored).

Selecting the frequency.

In FM frequencies mode, introduce the frequency directly through the numeric keyboard or press the **▲** and **▼** keys to select the desired frequency. In FM memories mode, press the **▲** and **▼** keys to select the desired channel.


Searching FM Radio Stations.

In FM radio mode, press the **FUN** + **1 scan** keys and press the **FUN** key again to start the FM radio search, "RADIO SEEK.UP" will appear on the display, press the **▲** or **▼** keys. The equipment will stop the search in the first station found. Press any key except the **▲** or **▼** and **ATV** keys to exit.





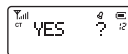
Storage of a FM radio station.

In FM frequencies mode, press the **FUN** key and next press the **EXIT** key, the memory number will

blink on the right side of the display. Press the  or  keys, or use the numeric keyboard to introduce the memory number you wish, press the **EXIT** key to confirm and return to the FM radio mode.

Delete of FM radio channels.

In FM memories mode, power off the transceiver, and keep pressing the **EXIT** key power on the transceiver, "DEL ?" will appear on the display and the channel number will blink. Press the  or  keys to select the memory number you want to delete, press the **FUN** key to confirm. Repeating this operation, you could delete other memories, among the 25 available.



Troubleshooting guide

Problem	Possible cause and possible solution
The transceiver does not ignite.	<p>Check the correct battery's installation on the transceiver.</p> <p>Recharge or replace the battery. (Remember that extreme working temperatures alters the battery operation)</p>
You hear noises or unwanted conversations in a channel.	<p>Verify that your CTCSS/DCS tones are enabled and matching with the other members of your group.</p> <p>Change the channel if the received signal has too much power, in another way other users will be interfered</p> <p>It is possible that the noise filter level (squellch level) is very low, adjust the level (it is only possible through the programming software).</p>

General technical specifications

Frequency range	VHF: 144 - 146 MHz UHF: 430 - 440 MHz
Memory channels	128
Frequency stability	±2.5 ppm
Antenna	High gain VHF-UHF antenna
Antenna impedance	50Ω
Operating voltage	DC7.2V (rechargeable Li-Ion battery)
Operation mode	Simplex or semi-duplex
Dimensions (H x W x L)	110mm x 58mm x 32mm

Transmitter

Power output	VHF: 5W / 1W UHF: 4W / 0.5W
Modulation mode	16k € F3E / 11k € F3E
Maximum deviation	≤ 5kHz / ≤ 2.5KHZ
Spurious radiation emitted	≤ 7.5μW
Adjacent channel power	≤ -65dB / ≤ -60dB
Pre-emphasis characteristics	6dB
Current	≤ 1.6A (5W)
CTCSS/DCS deviation	0.5KHz ± 0.1kHz / 0.4KHz ± 0.1kHz
Intermediation sensitivity	8 - 12mv
Audio distortion	<5%

Receptor

Sensitivity [-12 dB SINAD]	-122dbm [-12dB SINAD]
Audio power	1W
Audio distortion	< 10%
Intermediation	$\geq 60\text{dB} \geq 55\text{dB}$
Selectivity	$\geq 65\text{dB} \geq 60\text{dB}$
Spurious reject	$\geq 65\text{dB}$
Block	$\geq 85\text{dB}$

ATTENTION: Some of these specifications can be subject to modification without previous notice.

Warranty information

Period:

2 years from transceiver's date of purchase.

Note: keep your equipment's sales receipt. Is essential to give it for any complaint related to the equipment and for applying your warranty claim of it.

Warranty exclusions:

The equipment will lose its warranty in the next cases:

- Do not give the sales receipt.
- The product has not the serial number or is totally or partially illegible.
- The serial number does not match with the one in sales receipt.
- The product has been manipulated by non authorised personal.
- If the product damage has been caused by using non official accessories.
- If the has been used for any other purpose different from communicating between users of the frequencies assigned for amateur use that are: 144-146 MHz in VHF, 430-440 MHz in UHF and both of them on dual band transceivers.
- Misuse, abuse, abnormal use or inadequate care by the user, both deliberately or accidentally.
- If any of the Cautions and practical advices (from pages 6 to 9) or the Cautions and practical advices for the battery and the charger (from 10 to 12) were reneged on.

We have done everything possible to obtain the maximum of detail in this manual, but we are not responsible for any possible omission as well as printing errors or translation. All the specifications are subject to change by **LUTHOR TECHNOLOGIES** without previous notice.

Total or partial reproduction of this manual contents without the express authorisation of **LUTHOR TECHNOLOGIES** is prohibited

Note on environmental protection



This symbol on the equipment or its packaging indicates that at the end of the useful life of this product the user is legally obligated to fulfil the European Directive 2012/19/EU, on 4 July 2012 (in the legislative Spanish system RD 110/2015 on 20 February 2015), on Waste Electrical and Electronic Equipment, which applies the following: the electrical and electronic equipment, as well as batteries and rechargeable batteries, can not be treated as normal household waste, but must be delivered to the corresponding collection point. By ensuring that this product is rejected correctly, you help with this action to prevent negative consequences for the environment and human health which could be caused by its inappropriate management. The recycling of materials helps to preserve natural resources.

To receive detailed information about the recycling of this product, please contact the city office, the most nearby waste disposal service or the establishment where you purchased the product.

Declaration of conformity

CE 0700

The undersigned, in representation of:

Company: GENEREUS S.L.
Address: Industria, 5, Nave 8 08160 Montmeló - Barcelona (Spain)
Telephone number: 93 599 17 65
VAT number: B66339029
e-mail address: gestiontecnica@generius.com

We declare under our sole responsibility the conformity of the following product:

Type of equipment: Dual band VHF/UHF in FM mobile transceiver for amateur
Brand name: LUTHOR TECHNOLOGIES
Model number: TL-50
Manufacturer: GENEREUS S.L.
Manufacturing site: China

Which it refers this declaration, with the following rules or other policy documents:

EN 60950-1:2006+A11:2009+A1:2010+A12:2011 Safety regarding information technology equipments. General requirements.

EN 301 489-1 V1.9.2 / EN 301 489-15 V 1.2.1 Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Part 5: Specific conditions for Private land Mobile Radio(PMR) and ancillary equipment (speech and non-speech).

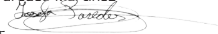
EN 301 783-1 V1.2.1 / EN 301 783-2 V1.2.1 Electromagnetic compatibility and Radio spectrum Matters (ERM); Land Mobile Service; for amateur radio equipments, part 1: technical features and measurement methods; part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive.

Directive RoHS: 2011/65/UE About restrictions of the use of certain hazardous substances in electrical and electronic equipment (EEE).

In accordance with the requirements of Directive 2014/53/UE, of the European Parliament and the 16th April 2014 Council, transposed into Spanish law by Royal Decree 188/2016 of 6th May 2016.

More additional information related with the equipment, accessories, images, updated management software, etc. are available on the official website: www.luthortechnologies.com

Josefa Paredes Martínez


Manager

Montmeló, 15th November 2016

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