

TL446

LUTHOR[®]
TECHNOLOGIES

FREE USE TRANSCEIVER

PMR 446

USER'S MANUAL

CE1313 



We want to appreciate the confidence shown by purchasing this transceiver **LUTHOR TECHNOLOGIES TL446**. This transceiver combines the most innovative electronic technology in radio communication with a thorough level of mechanical design: robust, ergonomic and functional.

The **LUTHOR TL446** offers high professional performances with regard to reliability, efficiency and resistance. Its ease of use makes it ideal both for professional users and amateurs without any experience on using transceivers.


Among its main features is the huge efficiency in terms of the equipment's low consumption. This low consumption together with the Li-Ion battery supplied with the equipment, offer an average of over 120 hours of use.

The **LUTHOR TL446** is a **FREE USE** transceiver (no licence required) recommended in any field where a reliable, robust and easy-to-use equipment is needed. In the professional field: industries, installation's professionals, hotel business, security forces, military, etc..., it is also ideal for practising sports: hiking, climbing, airsoft, etc....

Read carefully this manual and enjoy the transceiver you have purchased. We trust in the total satisfaction of your expectations regarding this equipment and we thank you again for your confidence in **LUTHOR**.

Please read carefully the following manual before turning on the equipment. Placing great importance to the Cautions and practical advices chapter, to ensure the maximum performance of the equipment's and its accessories just like the personal security of the user and those around you. Once read, keep this user's manual, it can be helpful for future reference.

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
IE	IT	LI	LU	NL	NO	PT	ES *
SE	CH	GB	CY	CZ	EE	HU	LV
LT	MT	PL	SK	SI	BG	RO	

*ES: in the specific case of Spain, this PMR transceiver is free use and do NOT need a licence or authorisation for using it.

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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 it is a removable one or contact your authorised technical service if it 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.
- ⚠ 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.

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Main features

PMR-446 Transceiver for free use without license

Output power: 0,5 W

16 memory channels

Analogical CTCSS and digital DCS tones

IP-55 protection

Hands free or VOX function with sensibility adjustment

Time Out Timer (TOT) function

Emergency alarm

Software programming via PC

High capacity Lithium battery



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



Transceiver



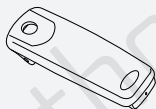
Battery pack
TLB-416



Desktop charger
TLC-426



Charger adapter
TLC-426/1

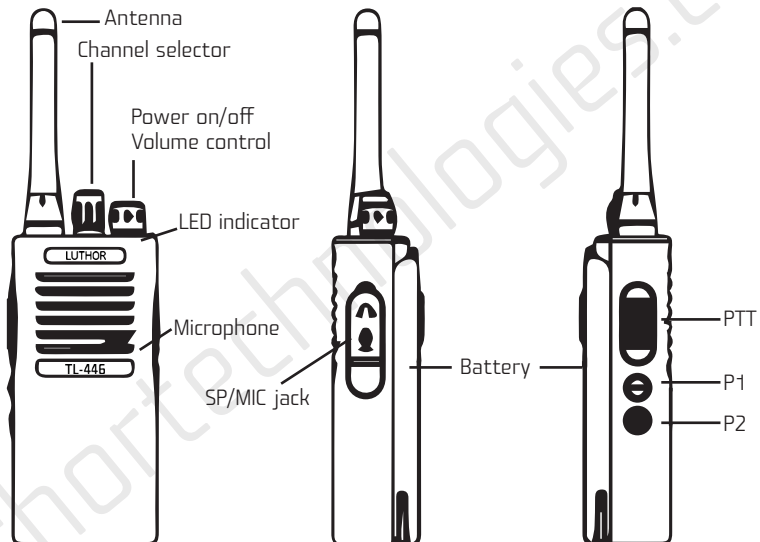


Belt-clip
TLP-456



User's manual

Transceiver's description



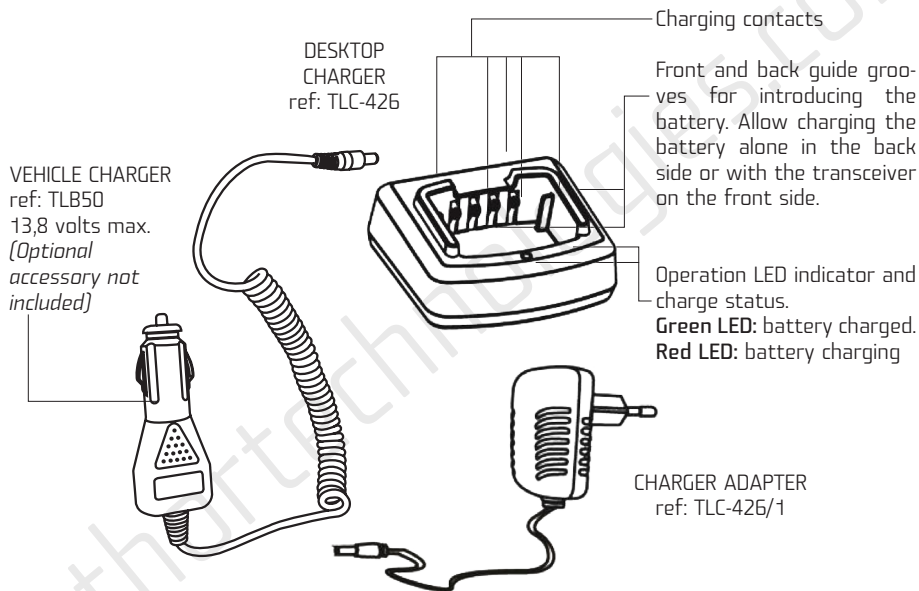
Battery charge

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. The Lithium-Ion batteries have mainly more advantages than the Ni-Mh or the old and out-dated Ni-Cad batteries (cadmium is a very polluting element), although 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 “Cautions and practical advices for the battery and the charger” chapter located from pages 10 to 14:

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 4 hours.

WARNING: never charge the battery with another charger than the one original supplied by the manufacturer and neither try to charge another battery different from the one supplied by the manufacturer for this charger.

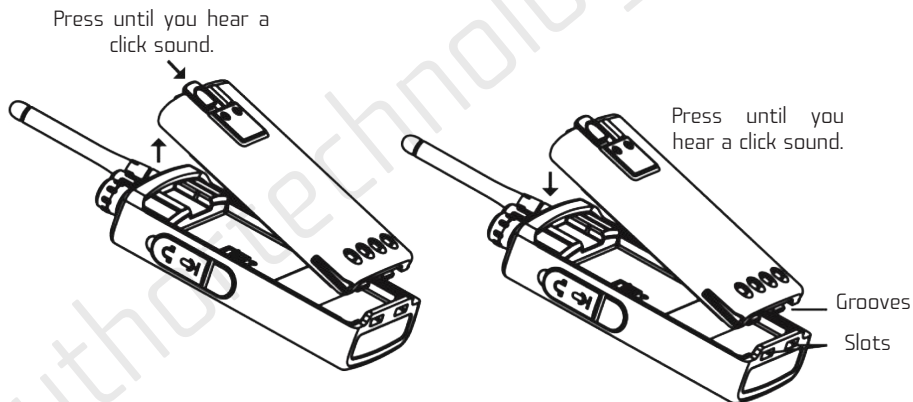
The charger supply can be made directly at 220 volts / 50 Hz by the charger adapter TLC-426/1 or through the connection known as vehicle "lighter" (optional).



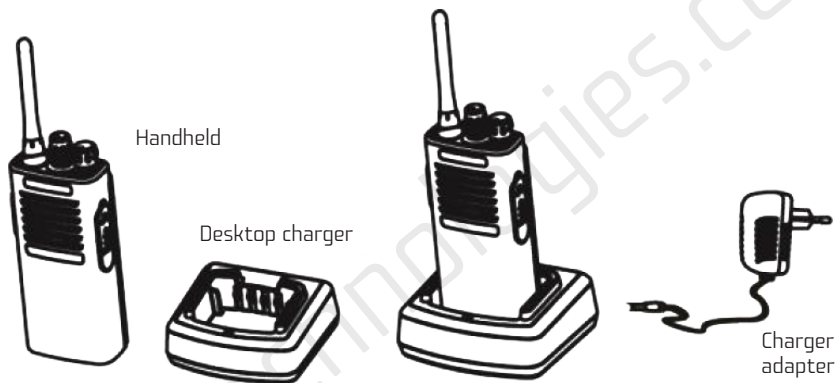
Note: in case of charging with the transceiver you must make it with the transceiver powered off.

Before powering-on the equipment, you must carry out a complete charge of the battery. After repeating two or three times the charge/discharge cycle by using the equipment, the battery will reach its maximum capacity of charging and performance. With the battery completely discharged, the charging time will be about 4 hours.

The battery charge will be carried out installing it on the equipment:



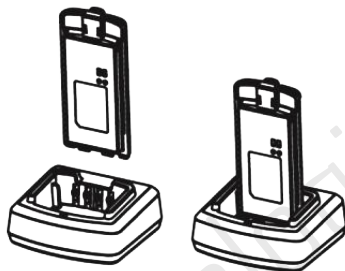
Once installed the battery on the transceiver put the equipment into the desktop charger:



Notes:

1. Remember to power the equipment off in case of charging the battery installed on the transceiver.
2. On the desktop charger there are two battery guides hanging over. On his behalf the battery has two slots. Fit the battery slots in the charger guides.
3. The estimated time for a discharged battery will be about 4 hours.

It is also possible to charge the battery without installing it on the transceiver. Insert the battery fitting its slots in the charger.

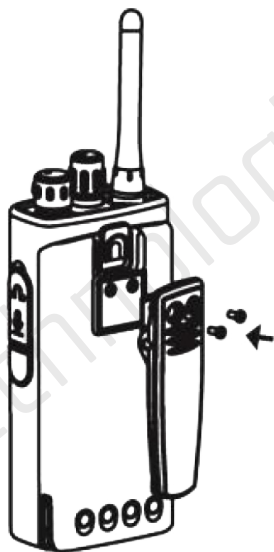


The desktop charger has an LED indicator that lights on and changes his colour depending on the charging and battery status:

Status	LED indicator
When connecting charger to the wall outlet.	Lights red during 3 seconds and then turns off.
Battery charge	Lights red
Charge completed	Lights green

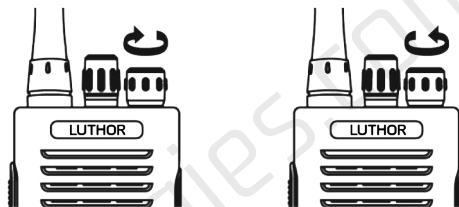
Once installed the battery on the transceiver you can install the belt clip, fixing it through the supplied screws.

ENG



Basic operation

Power on / volume



Power on the radio by turning ON the Power on/off / Volume control, you will hear a click sound. Make the inverse operation to power it off until you hear a click sound.

Adjusting the volume

Once the radio is powered on adjust the control clockwise to turn up the volume and counter-clockwise to turn it down.

WARNING: once the transceiver is powered on or when you are adjusting the volume, keep a certain distance with the equipment so as not to damage your ear caused by an excessive volume level. Likewise, never power on the radio with an audio accessory (headphone, micro-earphone, etc...) placed on your ear. Before placing it make sure the volume is the required not to damage your ear.

Selecting a channel

Turning the channel selector, select the desired channel amongst the 16 available. You can identify the selected channel through the indicator placed on the selector or if you have the voice function enabled your equipment will emit a sound signal.

Transmitting

Press the PTT button to transmit, talk to the microphone with a normal tone of voice, when you press the PTT button the LED indicator will light in red colour. Release the PTT button to return to the reception mode and listen. While receiving a transmission the LED indicator will light in green colour.

Another Operations

Monitor function

Use the monitor function to listen to the weakest signals that you can not hear during the normal operation mode, to disable the “sub-tones”, to disable the “squellch” function and to adjust the volume when there is no signal present on the selected channel, in this case you will hear noise. Press the lateral P1 key to enable the monitor function. Press this key again to disable the monitor function and return to the normal operation mode.

SCAN

This function allows founding conversations in any of the 16 programmed channels going across all of them at high-speed. When the radio detects a transmission, it stops the scan on the active channel. This allows you to hear and speak with the people on this channel without needing to manually change the channel. Once the transmission activity finishes, the radio waits for 5 seconds before resuming the scan again..

- To begin the exploration or scan, press the lateral P2 key (scan function is the factory setting for this key).
- Pressing the lateral P2 key again, you can stop or exit the scan function.
- If the radio has stopped on a channel during the scan because it detects a conversation, you will be able to keep part of it by pressing the PTT button. Once the conversation finishes and after 5 seconds of wait, the radio will resume the channel scan.
- If you press the PTT button while scanning, the equipment will emit on the selected channel. Once again, after 5 seconds since the transmission activity finishes, the radio will resume the channel scan.

Note: When enabling the scan function, the LED indicator flashes in green colour while exploring. When the radio detects any conversation the LED indicator will light continuously in green colour.

Skip of a specific channel while channel scanning

During the scan cycle it is possible to skip a channel that for any reason you do not want to hear, for example: a irrelevant conversation, interferences, too much noise, etc... When doing this operation the selected channel will be temporally skipped from the scan sequence.

- Start the channel scan by pressing the lateral **P2** key.
- When the radio stops in a channel you want to skip, keep the lateral **P2** key pressed during 2 seconds.
- The channel will be temporally skipped from the scan sequence. If you want to scan the skipped channel again, you will need to power off and power on the transceiver. The radio will recover the skipped channel for the following scan functions.

LED indicator:

It will light differently depending on the equipment's status:

Radio status	LED indicator
Low battery	Flashes in red colour
While pressing PTT to transmit (TX)	Lights in red colour
Receiving a signal (RX)	Lights in green colour
Scan function	Flashes in green colour
Cloning mode	Flashes in green colour
During cloning process	Flashes in red colour
Cloning process ending	Flashes in green colour
Connected to PC/Reading data	Flashes in red colour
Connected to PC/Writing data	Flashes in green colour
VOX/iVOX function enabled	Double flashes in green colour

Hand's free without using any accessory: iVOX

- While powering on the radio keep pressed the PTT button to enable the iVOX function.
- During the use of this function the LED indicator double flashes in green colour.
- Note that there is a small delay between the moment when you start speaking and the moment where the radio enables iVOX and starts transmitting.
- To exit the iVOX mode you will need to power off and power on the transceiver. The radio will power on in the standard operation mode.

Channel announce

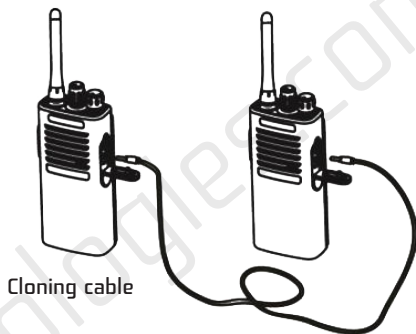
The transceiver has the option to announce the channel number in English when you select it or when the radio is powered on. You can enable or disable this function. To enable it, while powering on the radio keep pressed the lateral P1 key. Repeat the same operation to disable this function.

Emergency alarm

Keep pressed the lateral P1 key during a few seconds and the equipment will emit an emergency sound that will be also transmitted to the rest of the group transceivers. Press the PTT button to disable the emergency alarm.

Cloning function

*To carry this function out it is necessary the optional cloning cable, ref: TLCLON400



With the cloning function, the transceiver allows to copy the data: channels, functions and values from one radio to another in a very simple way.

1. Before starting the cloning process, make sure that both transceivers have the battery totally charged or with enough energy. While the cloning process is running, it can not be stopped.
2. Power off both transceivers.
3. Connect both radios through the cloning cable.
4. On the main transceiver (the one with the data you want to copy), while powering on the radio keep pressed the lateral P2 key. The LED indicator will start to flash in green colour, this indicates that the main radio is ready to start the operation.

5. Next power on the secondary radio (the one where you want to copy the data).
6. On the main transceiver press the PTT button. The main transceiver's LED indicator will start to flash in red colour and the secondary transceiver's LED indicator will start to flash in green colour.
7. When the cloning process is finished, if is successfully completed the main transceiver's LED indicator will flash in green colour, and it will be ready to carry out another cloning following the same process. The secondary radio will reboot automatically with the data copied from the main radio. If the cloning fails, the main transceiver's LED indicator will light in red colour and the secondary radio will reboot automatically without the data from the main radio.

Blocking lateral P1 and P2 keys

When keeping pressed the lateral P1 and P2 keys during 2 seconds these will remain blocked and will not react if pressed. The only operating controls will be the PTT button, the channel selector and the power on/off and volume control. Repeat the same operation to unlock them and be able to use it.

Reset procedure

If, for whatever reason, you would like to return the equipment to factory settings you will need to carry out a reset.

WARNING: note that this action erase the channels, frequencies, parameters and any other

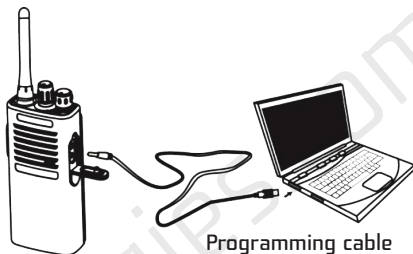
personalized programming made by the user, returning the device to the factory features and settings, that is, just as at the time of purchasing.

To carry the reset out, with the transceiver powered off, keep pressed at the same time the **PTT** button, the lateral **P1** and **P2** keys during 2 or 3 seconds while powering on the radio. After those few seconds the LED indicator will light in green colour and the radio will automatically reboot.

Management software

WARNING: only recommended for advanced users in this kind of equipments or for professional users. We recommend you to consult a professional user to carry out this kind of operations.

Thanks to its advanced technology, this transceiver allows to configure multiple functions and parameters through its management software. You must therefore have the software which can be downloaded free of charge at the official website: www.luthortechnologies.com and the programming cable (optional, reference: TLUSB108).



The management software allows programming:

- ☒ Select the free use frequencies to programme it on the 16 channels
- ☒ Analogical CTCSS and digital DCS tones
- ☒ Squelch level
- ☒ Hand's free function with accessory (VOX)
- ☒ Hand's free sensibility (VOX and iVOX)
- ☒ Lateral P1 and P2 keys customization
- ☒ Time Out Timer (TOT) function
- ☒ Microphone gain
- ☒ Call sound
- ☒ End of call sound (Roger Beep)
- ☒ Emergency alarm
- ☒ Lone worker function

Troubleshooting guide

Issue	Possible Reason and Possible Solution
The transceiver does not ignite.	<p>Check if the battery is correctly inserted.</p> <p>Charge or replace the battery. (Remember that extreme working temperatures affect the battery operational.</p>
You listen noises or another conversations in your channel.	<p>Confirm if CTCSS/DCS are enabled and are the same than the other users in your group.</p> <p>Change the channel if the received signal has great power, otherwise will interfere other users.</p> <p>It is possible that the noise filter (squellch level) is too low, adjust its level (it is only possible through management software).</p>

<p>You can not speak with other members of your group.</p>	<p>Check if you are on the same channel of your user's group.</p> <p>Confirm if CTCSS/DCS are enabled and are the same than the other users in your group.</p>
<p>Limited range distance.</p>	<p>Do not forget that buildings, metal structures, forests, mountains, use in vehicles, have the equipment close to you, on your pocket, etc... reduce the transceiver's range distance.</p> <p>To communicate try always to find the clearer place to improve radio's transmission and reception.</p>

<p>The equipment do not transmit or receive.</p>	<p>When you want to transmit make sure you press the PTT button completely.</p> <p>Check if you are on the same channel of your user's group. Confirm if CTCSS/DCS are enabled and are the same than the other users in your group.</p> <p>Charge or replace the battery. It is possible that the equipment has not enough energy to operate.</p>
<p>Interferences between equipments.</p>	<p>Your transceiver is too much close to another radio or any other device interfering. Try to move away the transceiver.</p>

<p>The charger's LED indicator do not flash in red.</p>	<p>Check if the battery is correctly inserted into the desktop charger's slots and if there is contact between the battery and the charging contacts.</p>
<p>Hand's free (VOX) does not enable</p>	<p>Check if the VOX function is enabled (it is only possible through software).</p> <p>Check the VOX sensibility level and adjust it to suite your needs (it is only possible through software).</p> <p>Check if the accessory you use is compatible with hand's free function (VOX).</p>

The battery does not charge.

Check if the battery is correctly inserted into the desktop charger's slots and if there is contact between the battery and the charging contacts.

Check if the charger adapter is correctly connected to the wall outlet and the desktop charger. If so, the desktop charger's LED indicator will light during a few seconds even though the battery is not introduced.

General

Frequency range	446,00625 - 446,09375 MHz (8 PMR446 frequencies)
Modulation type	FM
Memory channels	16 channels
Channel bandwidth	12.5 kHz
Operating voltage	7.4 V DC
Output power	500 mW
Dimensions (H x M x L)	130 x 53 x 32 mm.
Weight with battery	240 gr.

Transmitter

Output power	0.5 watts (500 mw)
Frequency stability	< 1.5 ppm
Harmonics and spurious	-36 dBm for f < 1 GHz, -30 dBm for f > 1GHz
Hum and noise	-45 dB
Modulation deviation	±2.5 kHz
Adjacent channel power	70 dBc
Audio frequency response	+1 ~ -3 dB (0.3 – 3 kHz)
Audio distortion	< 3%

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

Receiver

Sensitivity [12 dB SINAD]	-122 dBm [0.18μV]
Adjacent channel selectivity	70 dB
Audio distortion	< 5%
Radiated spurious emissions	< -54 dBm
Intermodulation rejection	70 dB
Audio output @ < 3% distortion	750 mW @ 8 ohms

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

Memorised channels

Channel number	Frequency (MHz)	Tone number	QT/DQT adjustment
1	446,00625	10	94,8 Hz
2	446,09375	08	88,5 Hz
3	446,03125	13	103,5 Hz
4	446,06875	05	79,7 Hz
5	446,04375	17	118,8 Hz
6	446,01875	18	123,0 Hz
7	446,08125	19	127,3 Hz
8	446,05625	07	85,4 Hz
9	446,00625	14	107,2 Hz
10	446,09375	15	110,9 Hz
11	446,03125	16	114,8 Hz
12	446,06875	06	82,5 Hz
13	446,04375		D132N
14	446,01875		D155N
15	446,05625		D134N
16	446,08125		D243N

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:

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 product has been manipulated in any way that affect its features or technical parameters.

If the product has been used for any other purpose different from communicating between users of free use PMR446 frequencies.

Misuse, abuse, abnormal use or inadequate care by the user, both deliberately or accidentally.

If any of the Cautions and practical advices (from pages 4 to 9) or the Cautions and practical advices for the battery and the charger (from pages 10 to 14) 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 1313 

The undersigned, in representation of:

Company: GENEUREUS S.L.
Address: Industria,5 Nave 8 - 08160 Montmeló - Barcelona (España)
Telephone number: +34 93 599 17 65
VAT number: B66339029
e-mail address: gestiontecnica@geneureus.com

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

Type of equipment: UHF FM PMR-446 mobile transceiver for free use
Brand name: LUTHOR TECHNOLOGIES
Model number: TL-446
Manufacturer: GENEUREUS 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+A2:2013

Safety regarding information technology equipments. General requirements.

- EN 301 489-1 V2.2.0 (2017-03)
- EN 301 489-5 V2.2.0 (2017-03)

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 300 296-1 V2.1.1 (2016-03)

Rule referred to portable equipments for the land mobile service intended to be used on private mobile radio networks on the 446 (PMR446) frequency band.

- Directiva 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

Montmeló, 26th February 2018

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