

ATTENTION

T20 is a multitask FRS transceiver. Combining the latest technology in radio communication along with a sturdy mechanical frame, T20 is the ideal and effective solution for the professionals who need to stay in touch with the working team (in construction sites, buildings, shows, trade fairs or hotels) or for leisure users that just want to keep up with friends and family.

To help you ward off bodily injury or property loss that may arise from improper operation, please read all the information carefully before using our products.

RF EXPOSURE

WARNING! It is up to the user to properly operate this radio transmitter to insure safe operation. Please adhere to the following:

Do not use the radio with a damaged antenna. If a damaged antenna comes into contact with the skin, a minor burn may result.

Please contact your local dealer for a replacement antenna.

Device operation up to maximum duty cycle 50% and compliance with the public environment RF Exposure.

This EUT is compliance with SAR for general/uncontrolled exposure limits in IC RSS-102 at operating duty factors of up to 50% and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528 and IEC 62209. This equipment should be installed and operated with a minimum distance of 2.5 cm must be maintained when held-to-face, and body-worn operations are restricted to the approved original accessories (belt clip), a minimum distance of 0 cm.

Cet EUT est conforme au SAR pour les limites d'exposition contrôlées dans IC RSS-102 à des facteurs de service allant jusqu'à 50% et a été testé conformément aux méthodes et procédures de mesure spécifiées dans IEEE 1528 et IEC 62209. Cet équipement doit être installé et utilisé avec une distance minimale de 2,5 cm doit être maintenu lorsqu'il est tenu face à face,

et les opérations portées sur le corps sont limitées aux accessoires d'origine approuvés (clip de ceinture), une distance minimale de 0 cm.

■ Hand-Held Operation (Held-to-Face)

This device was evaluated for typical hand-held (held-to-face) operations with a 1 inch spacing from the front of the radio. For hand-held operation, the radio should be held 1 inch from the user's face in order to comply with FCC RF exposure requirements.

■ Body-Worn Operation

This device was evaluated for body-worn operations with the supplied belt-clip accessory. (All necessary accessories are included in the package; any additional or optional accessories are not required for compliance with the guidelines.) Third party accessories (unless approved by the manufacturer) should be avoided as these might not comply with FCC RF exposure guidelines.

For body worn operation, this device has been tested and meets the Industry Canada RF exposure guidelines when used with Pofung accessories supplied or designated for this product. Use of other accessories may not ensure compliance with Industry Canada RF exposure guidelines.

Fonctionnement de l'appareil, lorsque porté sur le corps. Cet appareil a été testé et s'est avéré conforme aux normes d'Industrie Canada et approuvé pour le port sur le corps à l'aide des accessoires Pofung inclus et conçus pour cet appareil. L'utilisation d'accessoires ne respectant pas les exigences d'exposition RF d'Industrie Canada doit être évitée.

FCC PART15

■ FCC PART 15 COMPLIANCE

This device complies with Part 15 of the FCC rules. Operation is subjected to the following two conditions: (1) this device may

not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Avis de conformité à la FCC : Ce dispositif a été testé et s'avère conforme à l'article 15 des règlements de la Commission fédérale des communications (FCC). Ce dispositif est soumis aux conditions suivantes: 1) Ce dispositif ne doit pas causer d'interférences nuisibles et; 2) Il doit pouvoir supporter les parasites qu'il reçoit, incluant les parasites pouvant nuire à son fonctionnement.

Tout changement ou modification non approuvé expressément par la partie responsable pourrait annuler le droit à l'utilisateur de faire fonctionner cet équipement.

■ IC COMPLIANCE

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) L' appareil ne doit pas produire de brouillage;

(2) L' appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d' en compromettre le fonctionnement.

PRECAUTIONS FOR BATTERIES

■ Charging Prohibitions

To protect you against any property loss, bodily injury or even death, be sure to observe the following safety instructions:

1. Do not charge or replace your battery in a location containing fuels, chemicals, explosive atmospheres and other flammable or explosive materials.
2. Do not charge your battery that is wet. Please dry it with a soft and clean cloth prior to charge.
3. Do not charge your battery suffering deformation, leakage and overheat.
4. Do not charge your battery with an unauthorized charger.
5. Do not charge your battery in a location where strong radiation is present.
6. Overcharge shall always be prohibited for it may shorten the life of your battery.

■ Maintenance Instructions

To help your battery work normally or prolong its life, be sure to observe the following instructions:

1. Accumulated dust on charging connector may affect normal charging. Please use a clean and dry cloth to wipe it on a regular basis.
2. It is recommended to charge the battery under $5^{\circ}\text{C}\sim 40^{\circ}\text{C}$. Violation of the said limit may cause battery life reduction or even battery leakage.
3. To charge a battery attached to the product, turn it off to ensure a full charge.
4. Do not remove the battery or unplug the power cord during charging to ensure a smooth charging process.
5. Do not dispose of the battery in fire.
6. Do not expose the battery to direct sunlight for a long time nor place it close to other heating sources.
7. Do not squeeze and penetrate the battery, nor remove its housing.

■ Transportation Instructions

1. Damaged batteries must not be transported.
2. To avoid short circuit, separate the battery from metal parts or from each other if two or more batteries are transported in one packaging.

3. The radio must be switched off and secured against switch-on, if the battery is attached.

The content of the shipment must be declared in the shipping documents and by a Battery Shipping Label on the packaging. Contact your hauler for the local regulations and further information.

■ Precautions for Disposal

Once the service life of our products (including but not limited to radios and batteries) has ended, they shall not be disposed as household garbage. Their recycling and disposal shall satisfy your local regulations.

MAINTENANCE

To be safe and sure:

- Never open your radio's case.
- Never change or replace anything in your radio except the batteries.

■ Care and Safety

Your T20 was designed to fulfill any warranty obligations and to enjoy this product for many years.

As for all the electronically devices, we recommend you to follow this few suggestions:

- Do not attempt to open the unit. Non-expert handling of the unit may damage it and/or annul the warranty.
- When using regulated power supply, take notice of power voltage that must be 5V to avoid damages.
- High temperatures can shorten the life of electronic devices, and warp or melt certain plastics. Do not store the radio in dusty or dirty areas.
- Keep the Radio dry. Rainwater or damp will corrode electronic circuits.
- If it appears that the Radio diffuses peculiar smell or smoke, please shut off its power immediately and take off the charger or battery from the Radio.
- Do not transmit without antenna.

- To clean the radio, use a soft cloth dampened with water. Do not use cleaners or solvents because they can harm the body of the unit and leak inside, causing permanent damage.
- Use a dry, lint-free cloth to clean the battery contacts.

■ Hazardous Environments

Do not operate the radio in hazardous environments. Explosion or fire may result. Do not operate the radio near unshielded electrical blasting caps.

Under certain conditions, radios can interfere with blasting operations and may cause an explosion. Turn your radio OFF to prevent accidental transmission when in a blasting area or in areas posted: "Turn off two-way radio." Construction crews often use remote control RF devices to set off explosives.

WARNING! Read this information before using the radio. In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters.

Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of the radio complies with the FCC guidelines and these international standards.

Never allow children to operate the radio without adult supervision and the knowledge of the following guidelines.

Programming software (optional)

Thanks to Programming software CPS-T20-FRS, it is possible to increase the performance of your radio or to reduce its functionality by disabling some of the default features (CTCSS, DCS, TOT, VOX...)

For further information, please consult the Programming software manual.

Any attempt to change frequencies or output power of the radio invalidates the approval.

PACKAGE CONTENTS

- 1 T20 transceiver
- 1 1500mAh Li-ion rechargeable battery pack
- 1 User manual
- 1 Belt clip
- 1 USB cable
- 1 Wrist-strap

Note: The number of the above materials may be depending on the number of packages.

MAIN FEATURES

- FRS transceiver (No license required)
- 22 FRS two-way channels
- Channel spacing: 12.5 KHz
- Vocal tuning
- Battery low alert
- 2pin Kenwood accessory jack
- 260 Sub-codes (50 CTCSS Codes & 210 DCS codes)
- Up to 5 km range*
- Battery Life: up to 18 hours (under typical use conditions)
- Output power: $\leq 2W / \leq 0.5W$ (only 8-14 channels)
- Channel monitor
- Channel scan
- Battery save
- TOT (Time out timer)
- Micro USB connector for charging
- Li-Ion 1500mAh battery pack

Note: *Range may vary depending on environmental and/or topographical conditions.

BATTERY RECHARGE

T20 is equipped for using a 3,7V Li-ion rechargeable battery pack which can be recharged by connecting the USB cable to the radio and to a USB-charger (5V-1A). It takes 5 hours to fully recharge the radio.

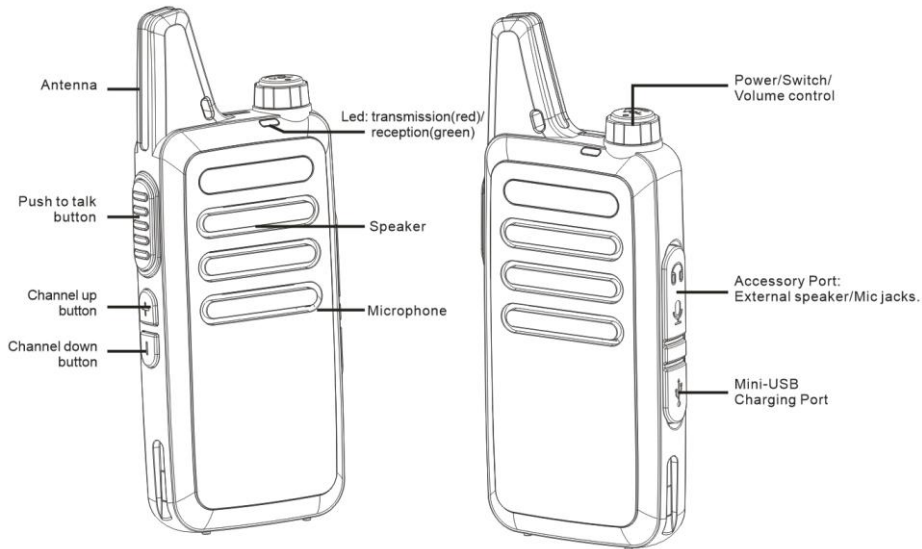
For maximum battery life, we recommend charging the battery pack when the T20 is off and the battery pack is fully discharged.

The Battery power saving feature enables a reduction in consumption of up to 50%. If it has been set, it automatically activates when the transceiver does not receive any signal for more than 5 seconds in order to save the battery life.

The Power saving function is activated by default and can be modified only by soft-ware.

Note: Using a different battery charger other than the one specified can cause damage to your device or may even cause explosions and personal injuries.

GETTING ACQUAINTED



NOTE: Long press [Channel down] key to enter the monitoring state.

OPERATIONS

Power on/off and volume adjustment

Rotate the Power/Volume knob clockwise to turn the radio on. Rotate the control clockwise /counter-clockwise to adjust the volume level as you prefer. To turn the radio off, rotate the control counter-clockwise till hearing a mechanical “click”.

Channel selection

In standby mode, directly press the **Channel Up (+)/ Down(-)** key to step down or down to select the channel. When the voice prompt function is turned on, the corresponding channel is broadcast by voice.

With T20 turned on, long press the LAMP key to lock or unlock the channel selection function. After the channel selection function is locked, channel switching will be prohibited, and pressing the **Channel Up (+)/ Down(-)** keys will cause a prompt tone to prohibit operation.

Transmission

To communicate, all radios in your group must be set to the same channel. Briefly press the **Channel Down (-)** to enable the Monitor feature in order to make sure that the frequency is not busy, and then press the [PTT] key. Release the [PTT] key to receive. Only one user at a time can talk during radio communications. Therefore, it is important not to transmit when you are receiving a communication and use the transmission mode sparingly to allow other users to talk. Transmission consumes a significant amount of energy and should therefore be used sparingly to prolong the battery life. If you are unable to contact a station that you have no problems in receiving, the station may be using CTCSS tones or DCS codes.

Monitor

The Monitor feature is for excluding (opening) the Squelch, in order to listen to signals that are too weak to keep the Squelch permanently opened. Hold down the **Channel Down (-)** to enable such function.

VOX

The VOX feature enables hands free conversations without using PTT: just speak in the direction of the microphone and the communication will be automatically activated. The VOX sensitivity can be adjusted in 5 different levels (1...5) through the programming software:

Level 2 is set by default and has the lowest VOX sensitivity, 5 is the highest one.

With the programming software you can enable/disable the VOX feature and select the sensitivity levels.

CPS programming path: Edit > VOX > VOX Level

Scan

To enable the Scan function, all 22 channels must be programmed. If you turn on the radio on channel 22, the scanning will automatically start. Whenever any signal is detected, the scanning will stop on a busy channel. If the PTT is pressed, you will transmit on the latest busy channel. Channel 22 is the priority channel; therefore if you don't pick up any signal when you press PTT, the radio will transmit on channel 22.

On the 16th channel, press and hold the **PTT + Channel Down (-)** to turn on the radio and turn the scanning function on or off.

Repeat the above operation to turn off the scan function.

Squelch

The Squelch function suppresses noises on free channels and allows receiving even weak signals. T20 has 10 different Squelch levels that can be set by programming software: 0 means that the Squelch is turned off; from level 1 to level 9 you will have different levels of noise reduction. The higher is the level, the louder will be the Squelch. By default, the Squelch level of T20 is set on level 4. Make sure you do not set an excessively high squelch level because in this case you may not be able to receive weaker signals. On the other hand an excessively low Squelch value could enable the Squelch even when no signals are present. Squelch must always be adjusted when no signals are present. The Time Out timer is settable from 30 sec to 270 sec. only through the programming software. This feature is disabled by default.

CTCSS/DCS tones

CTCSS and DCS tones are similar to access codes and enable the radio to communicate only with the users that are tuned on the same channel and have set the same code. For each channel, you can set up to 50 CTCSS tones and 210 DCS codes. The CTCSS/DCS tones are a sort of “access codes” and enable the radio to communicate only with the other users set on the same frequency and on the same CTCSS/DCS tone. Undesired signals coming from other stations set on the same frequency but with different CTCSS/DCS tones won't be received.

Quick operation radio

Without CPS programming software, you can perform the following quick operations through the combination of **PTT + Channel Down (-)**:

- On channels 1, press and hold the **PTT + Channel Down (-)** key to turn on the radio and turn the VOX function on or off. Accompanied by a voice prompt VOX ON or VOX OFF.
- On the 15th channel, press and hold the **PTT + Channel Down (-)** to turn on the radio and switch the prompt language between Chinese and English.
- On the 16th channel, press and hold the **PTT + Channel Down (-)** to turn on the radio and turn the scanning function on or off.

ON-LINE SERVICE AND SUPPORT

The Pofung website provides additional information about obtaining service or support for the Pofung line of two-way radios and accessories. Visit: www.pofungshop.com Mail: service@pofungshop.com

FCC Licensing Information This pofung radio operates on Commercial/ Land Mobile frequencies which require a license from the Federal Communications Commission (FCC) for business, personal, education and recreational use. To obtain forms, call the FCC forms hotline at: 1-800-418-3676 or go to <http://www.fcc.gov> for questions concerning commercial licensing, contact the FCC at 1-888CALL-FCC (1-888-225-5322).

Appendix A. – Technical Specifications

General Part

Frequency Range	FRS
Working temperature	-10°C to +40°C
Operation Voltage	DC 3.7 V \pm 10%
Operation Mode	Simplex
Dimensions	136mm×56mm×28mm (with Antenna)
Weight	130g (Battery pack included)
Antenna Impedance	50ohm
Duty cycle	5/5/90%

Transmitter Part

RF Output Power	2W (1-7&15-22Channels) /0.5W(8-14Channels)
FM Modulation	11K0F3E@12.5KHz
Adjacent Channel Power	60dB @ 12.5KHz
Transmission current	\leq 1000mA

Receiver Part

Receive Sensitivity	0.25 μ V (12dB SINAD)
Adjacent Channel Selectivity	\geq 55dB@12.5KHz
Inter Modulation and Rejection	\geq 55dB@12.5KHz
Conducted Spurious Emission	\leq -57dB@12.5KHz
Rated Audio Power Output	0.75W @8 ohms
Receive current	\leq 380mA
Rated Audio Distortion	\leq 5%

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

Appendix B. - FRS Frequency Chart (MHz)

CH.No	CH.Freq.	Power Output	CH.No	CH.Freq.	Power Output
1	462.5625	High	12	467.6625	Low
2	462.5875	High	13	467.6875	Low
3	462.6125	High	14	467.7125	Low
4	462.6375	High	15	462.5500	High
5	462.6625	High	16	462.5750	High
6	462.6875	High	17	462.6000	High
7	462.7125	High	18	462.6250	High
8	467.5625	Low	19	462.6500	High
9	467.5875	Low	20	462.6750	High
10	467.6125	Low	21	462.7000	High
11	467.6375	Low	22	462.7250	High

Appendix C. – Trouble shooting guide

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

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

Disclaimer

The accuracy and completeness of the contents are sought in the process of compilation, but we do not bear any responsibility for the possible errors or omissions. With the continuous development of technology, we reserve the right to change the design and specification of the product without notice. No copy, modification, translation and dissemination of this handbook may be made in any form without the prior written authorization of our department.



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