THANK YOU!

We are grateful that you chose our digital radio.

We believe this easy-to-use transceiver will provide dependable and reliable communication to personal operating at peak efficiency. The transceivers incorporate the latest in advanced technology. As a result, we feel strongly that you will be pleased with the quality and features of this product!

Product safety and RF Exposure for digital radio:

 **ATTENTION!**	Before using this digital radio, please read the manual which contains important operating instructions for safe usage, RF Energy Awareness, control information and operational instructions for compliance with RF Energy Exposure limits in applicable national and international standards, and also read the operational instructions for safe use.

CONTENT

RETEVIS

FOR YOUR SAFETY

Read these simple guidelines. Not following them may be dangerous or illegal. Read the complete user manual for further information.

SWITCH ON SAFELY

Do not switch the device on when transceiver use is prohibited or when it may cause interference or danger.

ROAD SAFETY COMES FIRST

Obey all local laws. Always keep your hands free to operate the vehicle while driving. Your first consideration while driving should be road safety.

INTERFERENCE

All wireless devices may be susceptible to interference, which could affect performance.

SWITCH OFF IN HOSPITALS

Follow any restrictions. Switch the device off near medical equipment.

SWITCH OFF IN AIRCRAFT

Follow any restrictions. Wireless devices can cause interference in aircraft.

SWITCH OFF WHEN REFUELING

Do not use the device at a refueling point. Do not use near fuel or chemicals.

FOR YOUR SAFETY

SWITCH OFF NEAR BLASTING

Follow any restrictions. Do not use the device where blasting is in progress.

USE SENSIBLY

Use only in the normal position as explained in the product documentation. Do not touch the antenna unnecessarily.

QUALIFIED SERVICE

Only qualified personnel may install or repair this product.

ENHANCEMENTS AND BATTERIES

Use only approved enhancements and batteries. Do not connect incompatible products.

WATER-RESISTANCE

Your device is not fully water-resistant. Keep it dry.

BACK-UP COPIES

Remember to make back-up copies or keep a written record of all important information.

CONNECTING TO OTHER DEVICES

When connecting to any other device, read its user manual for detailed safety instructions. Do not connect incompatible products.

UNPACKING AND CHECKING EQUIPMENT

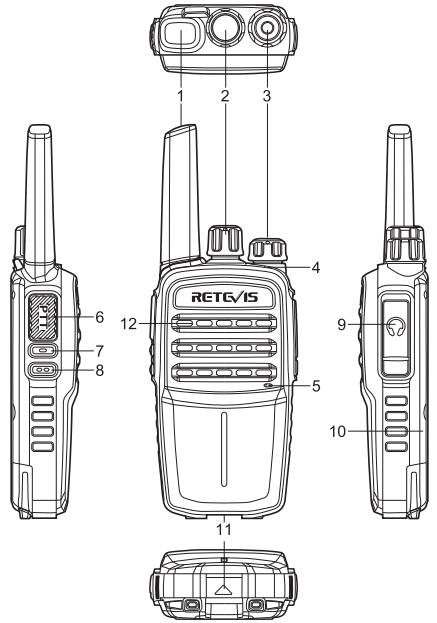
Carefully unpack the transceiver. We recommend that you identify the items listed in the following table before discarding the packing material. If any items are missing or have been damaged during shipment, file a claim with the carrier immediately.

Packing List

DESCRIPTION	QUANTITY
Unit Transceiver	1
Li-ion Battery Pack	1
Charger	1
Adaptor	1
Belt Clip	1
User Manual	1
Hand Strap	1

GETTING ACQUAINTED

Orientation



1	Antenna	7	Programming Key (SK1)
2	Channel Selector Knob	8	Programming Key (SK2)
3	Radio On-Off/Volume Control Knob	9	Accessory Jack
		10	Battery Pack
4	LED Indicator	11	Battery Latch
5	Microphone	12	Speaker
6	PTT Switch (PTT)		

LED Indicator

	LED Indication	Radio status
●	LED glows red/orange	Transmitting.
☀	LED flashes red	Low power.
●	LED glows green	Receiving.
☀	LED flashes orange	Scanning.

Battery Capacity Indicator

Upon press the programmed Battery Capacity Indicator key, the transceiver will indicate the current battery level by voice.

Audible Indicator	Battery Level
"4"	High.
"3"	Satisfactory.
"2"	Low.
"1"	Very Low.
Please charge the battery	Under the low battery threshold, please charge the battery at once or replace a new battery.

Assembling the Battery Pack

1. To assemble the battery pack, position the two round bulges on the top of the radio body correspondingly, then press the bottom part of battery pack towards the radio and lift up the battery latch until a "click" sound is heard.
2. To disassemble the battery pack, pull outward the battery latch, then lift the bottom part of battery pack from the radio body.

Assembling the Belt Clip

1. Screw the belt clip at the back of the battery to assemble.
2. Screw counter clockwise the screws at the back of the battery to remove.

Assembling the Accessories

1. Open the cap of accessory jack.
2. Insert the accessories (such as: earphone/programming cable) plug into the earphone jacks.

Charging the Battery Pack

Please charge the battery pack as follows:

1. Slide the battery pack or transceiver with a battery pack into the desktop charger.
2. Make sure the battery pack contacts are in contact with the charging terminals.
3. The charging LED lights red and charging begins.

4. After charging about 4 hours, when the light turns to green, it means the battery pack is fully charged.
5. Then you can take off the battery pack or transceiver with the battery pack and use it.

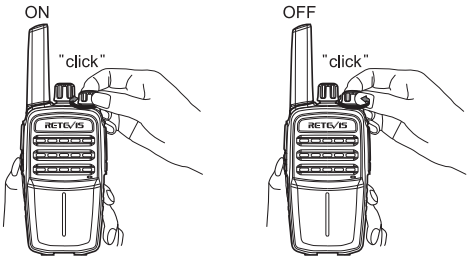
Caution:

- Make sure the radio is powered off before charging and do not use the radio during charging.
- Read the Safety Information Booklet in advance to get necessary safety information.

BASIC OPERATION

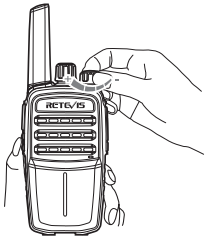
Switch Power On/Off

1. Power ON: Rotate the **[Power On-Off/Volume Control]** knob clockwise until a "click" is heard.
2. Power OFF: Rotate the **[Power On-Off/Volume Control]** knob counter-clockwise until a "click" is heard.



Adjusting the Volume

After turning the radio on, rotate the **[Power On-Off/Volume Control]** knob clockwise to increase the output sound volume, or counter-clockwise to decrease it.



BASIC OPERATION

Selecting a Channel

There are 48 channels (include analog and digital channel) in 3 groups for selection. Rotate the **[Channel Selector]** knob clockwise to increases the number and counter clockwise to decreases it.

Call

There are 3 kinds of call mode: calls on digital channels, calls on analog channels, calls on mixed channels. To ensure optimal volume of the receiving radio, hold the radio approximately 2.5 to 5 centimeters away from your mouth.

Calls on Digital Channels

You can initiate a private call, group call or all call (your radio must be programmed to allow you to use the all call service by your dealer). A call contact for each digital channel may be preset by your dealer.

BASIC OPERATION

Call	Description	Operation
Private Call	A call made to a private contact.	• In standby mode, hold the [PTT] key to transmit a call. • The receivers should be used the same digital channel. • When a call is received, you can listen to it without any operation, and you may hold the [PTT] key within the preset time period to call back.
Group Call	A call made to the group contacts.	
All Call	A call made to all the contacts on the current channel.	

Calls on Analog Channels (No Signaling)

You can transmit on an analog channel as the same operation on digital channel.

Calls on Mixed Channels

In mixed channel mode, both of the signal of digital and analog can be received.

ADVANCED OPERATIONS

Available features of this radio are listed below. As to the operation of private call, group call and calls on analog channels, please refer to the above "Call" chapter. The other features should be programmed as default feature of [SK1] and [SK2] key by the dealers, please question with the dealer for more operation details.

Feature Type	Description	Detailed Feature
Common Features	Zone	There is a group of channels in each zone, the radio supports 3 zones with a maximum of 48 channels.
	Scan	To scan the list of current channels, a mixed channel between analog and digital channel can't be scanned.
	EMG Alert	Allows you to set up an emergency call with your partner or control center.
	VOX	The feature allows you to transmit hands-free with the transceiver or thru a headset.
	Busy Channel Lockout	This feature will not allow the user to transmit as long as the radio is receiving another signal.

ADVANCED OPERATIONS

Feature Type	Description	Detailed Feature
Common Features	Time-Out Timer	The feature limits each transmission time and sounds a warning beep if over setting time. If would like to continue for the transmission, please transmit after the preset time.
	Adjust Squelch Level	The squelch suppress the audio output of a receiver in the absence of a sufficiently strong desired input signal. The higher level of squelch, the strong signal will be requested.
	Battery Saver	When the radio standby without any operation over a certain time, battery saver feature will be automatically turned on.
Digital Features	Private Call	A call made to a private contact.
	Group Call	A call made to the group contacts.
	All Call	A call made to all the contacts on the current channel.
	One Touch Call	This feature helps you to initiate a group call or private call to preset ID or contact conveniently.

ADVANCED OPERATIONS

Feature Type	Description	Detailed Feature
Digital Features	Dual Capacity Direct Mode	This feature allows you to have two voice calls simultaneouly from the two time slots.
Analog Features	Call on Analog Channel	In this working mode, only the current analog channel can transmit an analog signal to all channels.
	Squelch Off	This feature allows you to open the noise squelch.
	Monitor	Monitor allows you to open the signaling squelch.
	CTCSS/DCS	A CTCSS/DCS is a sub-audible tone/ code which allows you to ignore (not hear) calls from other parties who are using the same channel.

SPECIFICATIONS

General specifications

Frequency Range	*PMR/FRS*	Channel capacity	*48*
Channel spacing	*12.5K*	Working voltage	*3.7V*
Standard battery	*1700mAh*	Battery average working hours (5-5-90 working cycle)	*11/12（h）*
Frequency stability	*±2.5 PPM*	Working temperature range	*-10~55℃*
Antenna impedance	*50Ω*	Dimensions (H x W x D) (Without antenna)	*104x55x24mm*
Weight (with antenna)	*135g*		

Transmitter	
Output Power	*EU:0.5W US/CA:≤2W*
Modulation(analog)	*11KΦF3E@12.5KHz*
Modulation (digital)	*12.5KHz (data +voice) 7K60FXW.(data only)7K60FXD*
Spurious emission	*-36dBm<1GHz -30dBm>1GHz*
SNR	*40dB*
Audio distortion	*≤5%*
Modulation limit	*±2.5@12.5KHz*
Audio response(300-3000HZ)	*±3dB*
Digital vocoder type	*AMBE++*
Digital protocol	*ETSI-TS102 361-1,-2*

Receiver	
Sensitivity (analog)	*≤0.2 μV（12dB SINAD）*
Sensitivity (digital)	*≤0.3 μV/BER 5%*
ACS	*≥60dB*
Intermodulation	*≥60dB*
Spurious response rejection	*≥60dB*
S/R	*40dB*
Audio output power	*≥500mW*
Audio distortion	*≤5%*
Audio frequency response	*±3dB*
Conducted spurious emission	*≤-57dBm*

CTCSS/DCS

CTCSS Standard Frequency Table

1 - 63.0	14 - 100.0	27 - 156.7	40 - 196.6
2 - 67.0	15 - 103.5	28 - 159.8	41 - 199.5
3 - 69.3	16 - 107.2	29 - 162.2	42 - 203.5
4 - 71.9	17 - 110.9	30 - 165.5	43 - 206.5
5 - 74.4	18 - 114.8	31 - 167.9	44 - 210.7
6 - 77.0	19 - 118.8	32 - 171.3	45 - 218.1
7 - 79.7	20 - 123.0	33 - 173.8	46 - 225.7
8 - 82.5	21 - 127.3	34 - 177.3	47 - 229.1
9 - 85.4	22 - 131.8	35 - 179.9	48 - 233.6
10 - 88.5	23 - 136.5	36 - 183.5	49 - 241.8
11 - 91.5	24 - 141.3	37 - 186.2	50 - 250.3
12 - 94.8	25 - 146.2	38 - 189.9	51 - 254.1
13 - 97.4	26 - 151.4	39 - 192.8	

DCS Standard Group Number

017	054	132	212	263	346	445	523	654
023	065	134	223	265	351	446	526	662
025	071	143	225	266	356	452	532	664
026	072	145	226	271	364	454	546	703
031	073	152	243	274	365	455	565	712
032	074	155	244	306	371	462	606	723
036	114	156	245	311	411	464	612	731
043	115	162	246	315	412	465	624	732
047	116	165	251	325	413	466	627	734
050	122	172	252	331	423	503	631	743
051	125	174	255	332	431	506	632	754
053	131	205	261	343	432	516	645	

TROUBLESHOOTING GUIDE

Problem	Solution
No power.	• The battery pack may be dead, recharge or replace the battery pack. • The battery pack may not be installed correctly, remove the battery pack and install it again.
Battery power dies shortly after charging.	• The battery pack life is finished, replace the battery pack with a new one. • The battery pack strength may be too low, please recharge or replace the battery pack.
Cannot talk to or hear other members in your group.	• Make sure you are using the same frequency and CTCSS/DCS/Color code as the other members in your group. • Other group members may be too far away. Make sure you are within range of the other transceivers.
Other voices (besides group members) are present on the channel.	• Change the CTCSS/DCS/Color code setting. Be sure to change the tone/code on all transceiver in your group.
No voices or only little volume voice.	• Please make sure to adjust the volume suitable value. • Maybe the Mic is out of work, send to the dealers to check.
The noise is too loud.	• You may be too far away from other members. Move towards other members. • If you open the noise squelch, please close it.

CARE AND CLEANING

To guarantee optimal performance as well as a long service life of your radio, please follow the tips below.

Radio Care

- Do not pierce or scrape the radio with any edged instruments or hard objects.
- Keep the radio far away from substances that can corrode the electronic circuit.
- Do not hold the radio by its antenna or headset cable directly.
- Attach the accessory jack cover when the radio is not in use.

Radio Cleaning

- Clean up the dust and fine particles on the radio surface with a clean and dry lint-free cloth or a brush regularly.
- Use neutral cleanser and a non-woven fabric to clean the keys, control knobs and front case after long-time use. Do not use chemical preparations such as stain removers, alcohol, sprays or oil preparations, so as to avoid surface case damage. Make sure the radio is completely dry before use.

Caution: Power off the radio and remove the battery before cleaning.

This two-way radio uses electromagnetic energy in the radio frequency (RF) spectrum to provide communications between two or more users over a distance. It uses radio frequency (RF) energy or radio waves to send and receive calls. RF energy is one form of electromagnetic energy. Other forms include, but are not limited to, sunlight and x-rays. RF energy, however, should not be confused with these other forms of electromagnetic energy, which when used improperly, can cause biological damage. Very high levels of x-rays, for example, can damage tissues and genetic material.

Experts in science, engineering, medicine, health, and industry work with organizations to develop standards for safe exposure to RF energy. These standards provide recommended levels of RF exposure for both workers and the general public. These recommended RF exposure levels include substantial margins of protection.

All Retevis two-way radios are designed, manufactured, and tested to ensure they meet government-established RF exposure levels. In addition, manufacturers also recommend specific operating instructions to users of two-way radios.
These instructions are important because they inform users about RF energy exposure and provide simple procedures on how to control it.

Please refer to the following websites for more information on what RF energy exposure is and how to control your exposure to assure compliance with established RF exposure limits:

http://www.who.int/en/

Local Government Regulations

When two-way radios are used as a consequence of employment, the Local Government Regulations requires users to be fully aware of and able to control their exposure to meet occupational requirements. Exposure awareness can be facilitated by the use of a product label directing users to specific user awareness information. Your Retevis two-way radio has a RF Exposure Product Label. Also, your Retevis user manual, or separate safety booklet includes information and operating instructions required to control your RF exposure and to satisfy compliance requirements.

Radio License

Governments keep the radios in classification, most of the classified walkie-talkie need to get local government License, and operation is allowed. The detailed classification and the use of your two radios, please contact the local government radio management departments.
For the following specified classification: the USA FRS, Australian CB, the individual license is not required.

Compliance with RF Exposure Standards
(If appropriate, Reference to the actual product's Safety Marking)

Your Retevis two-way radio is designed and tested to comply with a number of national and International standards and guidelines (listed below) for human exposure to radio frequency electro-magnetic energy.

FCC ID

The FCCID means: This radio complies with the IEEE (FCC) and ICNIRP exposure limits for occupational/controlled RF exposure environments at operating duty factors of up to 50% talk-50% listen and is approved for occupational use only.

CE

The CE marking means: Hereby, Shenzhen Retevis Technology Co., Ltd. declares that the radio equipment type RT40 is in compliance with the RED Directive 2014/53/EU and the ROHS Directive 2011/65/EU and the WEEE Directive 2012/19/EU.
The full text of the EU declaration of conformity is available at the following internet address: www.retevis.com.

IC ID

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:
(1)This device may not cause interference, and
(2)This device must accept any interference, including interference that may cause undesired operation of the device.

In terms of measuring RF energy for compliance with these exposure guidelines, your radio generates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.

NOTE: The approved batteries, supplied with this radio, are rated for a 5-5-90 duty factor (5% talk-5% listen-90% standby) even though this radio complies with FCC occupational exposure limits and may operate at duty factors of up to 50% talk.

RF energy exposure standards and guidelines
(if appropriate)

Your Retevis two-way radio complies with the following RF energy exposure standards and guidelines:

•United States Federal Communications Commission (FCC), Code of Federal Regulations; 47 CFR part 2 sub-part J.
•American National Standards Institute (ANSI)/Institute of Electrical & Electronic Engineers (IEEE) C95. 1-2005
•IEEE Std. 1528:2013 and KDB447498, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
•Institute of Electrical and Electronic Engineers (IEEE) C95.3-2002
•International Commission on Non-Ionizing Radiation Protection (ICNIRP)
•Ministry of Health (Canada) Safety Code 6 & Industry Canada RSS-102.
•International Electrotechnical Com-mission IEC62209-2:2010

RF Exposure Compliance and Control Guidelines and Operating Instructions

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures.

Guidelines

•User awareness instructions should accompany the device when transferred to other users.
•Do not use this device if the operational requirements described herein are not met.

Operating Instructions

•Transmit no more than the rated duty factor of 50% of the time. To Transmit (Talk), push the Push To Talk (PTT) button. To receive calls (listen), release the PTT button. Transmitting 50% of the time, or less, is important because the radio generates measurable RF energy exposure only when transmitting in terms of measuring for standards compliance.
•Transmit only when people outside the vehicle are at least the recommended minimum lateral distance away from a properly installed according to installation instructions, externally mounted antenna.
•When operating in front of the face, worn on the body, always place the radio in a Retevis approved clip, holder, holster, case, or body harness for this product. Using approved body-worn accessories is important because the use of Non-Retevis approved accessories may result in exposure levels, which exceed the IEEE/ICNIRP occupational/controlled environment RF exposure limits.
•If you are not using a body worn accessory and are not using the radio in the intended use position, in front of the face or at the body in the PTT mode or alongside of the head in the phone mode, then ensure the antenna and the radio are kept 2.5 cm (one inch) from the body when transmitting. Keeping the radio at a proper distance is important because RF exposures decrease with increasing distance from the antenna.

Hand-held Mode

• Hold the radio in a vertical position with the microphone (and other parts of the radio including the antenna) at least 2.5 cm (one inch) away from the nose or lips. The antenna should be kept away from the eyes. Keeping the radio at a proper distance is important as RF exposure decreases with increasing distance from the antenna.

Phone Mode

•When placing or receiving a phone call, hold your radio product as you would a wireless telephone. Speak directly into the microphone.

Electromagnetic Interference/Compatibility

NOTE: Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility.

Avoid Choking Hazard

Small Parts. Not for children under 3 years.

WARNING

Turn off your radio power in the following conditions

•Turn off your radio before removing (installing) a battery or accessory or when charging battery.
•Turn off your radio when you are in a potentially hazardous environments: Near electrical blasting caps, in a blasting area, in explosive atmospheres (inflammable gas, dust particles, metallic powders, grain powders, etc.).
•Turn off your radio while taking on fuel or while parked at gasoline service stations.

To avoid electromagnetic interference and/or compatibility conflicts

•Turn off your radio in any facility where posted notices instruct you to do so, hospitals or health care facilities (Pacemakers, Hearing Aids and Other Medical Devices) may be using equipment that is sensitive to external RF energy.
•Turn off your radio when on board an aircraft. Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

Note:
Pacemakers

Defibrillators or other Implanted Medical Devices Persons with pacemakers, Implantable Cardioverter-Defibrillators (ICDs) or other active implantable medical devices (AIMD) should:
• ALWAYS keep the radio more than 15 cm from their pacemaker when the radio is turned on.
• Consult with their physicians regarding the potential risk of interference from radio frequency transmitters, such as portable radios (poorly shielded medical devices may be more susceptible to interference).
• Turn the radio OFF immediately if they have any reason to suspect that interference is taking place.
• Do not carry the radio in a chest pocket or near the implantation site, and carry or use the radio on the opposite side of their body from the implantable device to minimize the potential for interference.

Hearing Aids

Some digital wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

WARNING

Protect your hearing

• Use the lowest volume necessary to do your job.
• Turn up the volume only if you are in noisy surroundings.
• Turn down the volume before adding headset or earpiece.
• Limit the amount of time you use headsets or earpieces at high volume.
• When using the radio without a headset or earpiece, do not place the radio's speaker directly against your ear.

Note: Exposure to loud noises from any source for extended periods of time may temporarily or permanently affect your hearing. The louder the radio's volume, the less time is required before your hearing could be affected. Hearing damage from loud noise is sometimes undetectable at first and can have a cumulative effect.

WARNING

Avoid Burns

Antennas

•Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with the skin when the radio is in use, a minor burn can result.

Batteries (If appropriate)

•When the conductive material such as jewelry, keys or chains touch exposed terminals of the batteries, may complete an electrical circuit (short circuit the battery) and become hot to cause bodily injury such as burns. Exercise care in handling any battery, particularly when placing it inside a pocket, purse or other container with metal objects.

Long transmission

•When the transceiver is used for long transmissions, the radiator and chassis will become hot.

WARNING

Safety Operation

Forbid

•Do not use charger outdoors or in moist environments, use only in dry locations/conditions.
•Do not disassemble the charger, that may result in risk of electrical shock or fire.
•Do not operate the charger if it has been broken or damaged in any way.
•Do not place a portable radio in the area over an air bag or in the air bag deployment area. The radio may be propelled with great force and cause serious injury to occupants of the vehicle when the air bag inflates.

To reduce risk

•Pull by the plug rather than the cord when disconnecting the charger.
•Unplug the charger from the AC outlet before attempting any maintenance or cleaning.
•Contact Retevis for assistance regarding repairs and service.

WARNNINGS

Use of Communication Devices While Driving

- Always check the laws and regulations on the use of radios in the countries and areas where you drive.
- Give your full attention to driving and to the road.
- If available, use the hands-free facility.
- If driving conditions or regulations require it, pull off the road and park before making or answering a call.

WARNING

Approved Accessories

- This radio meets the RF exposure guidelines when used with the Retevis accessories supplied or designated for the product. Use of other accessories may not ensure compliance with the RF exposure guidelines and may violate regulations.
- For a list of Retevis-approved accessories for your radio model, visit the following website: http://www.Retevis.com

GUARANTEE

Model Number: .....

Serial Number: .....

Purchasing Date: .....

Dealer: ..... Telephone: .....

Country: .....

Address: .....

Post Code: ..... Email: .....

Remarks:

1.This guarantee card should be kept by the user, no replacement if lost.
2.Most new products carry a two-year manufacturer's warranty from the date of purchase. Further details, pls read http://www.retevis.com/after-sale/
3.The user can get warranty and after-sales service as below:
- Contact the seller where you buy.
- Products Repaired by Our Local Repair Center.

4.For warranty service, you will need to provide a receipt proof of purchase from the actual seller for verification.

Exclusions from Warranty Coverage:

1.To any product damaged by accident.
2.In the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs.
3.If the serial number has been altered, defaced, or removed.