

## (1) INTRODUCTION

**Congratulations!** You have just purchased a new remarkable breakthrough product in communications to be used on the **Public Radio Service (PRS)** frequency band. The **Zartek** two-way radio enables you to talk instantly to as large a group as required, as often as you like without airtime charges and will give you, family, friends, commercial and industrial colleagues many years of quality communications. New legislation now allows you to own and use this relatively powerful equipment without an operator's annual license from ICASA (formally SATRA). This applies to all SADC (Southern African Development Community) region countries as well. National standby communication channel is **01 01**. This should be used to make contact with outsiders and springboard to other channels.

To obtain **maximum** performance from your personal two-way radio, please take a few minutes to read this users manual carefully. The **Zartek** is a lightweight, palm-sized wonder with 190 two-way radio channels that you can carry almost anywhere and use to talk to any person who is set on the same channel as long as they are within range. **Note!** Generally the higher you are, the further the line-of-sight communication distance.

The range of the **Zartek** is anything from 1km indoors to 20kms outdoors, dependant on terrain and environment. The signal will bounce around and penetrate materials at the speed of light, bearing in mind the greater the barriers the more attenuation i.e. weakening of the signal.

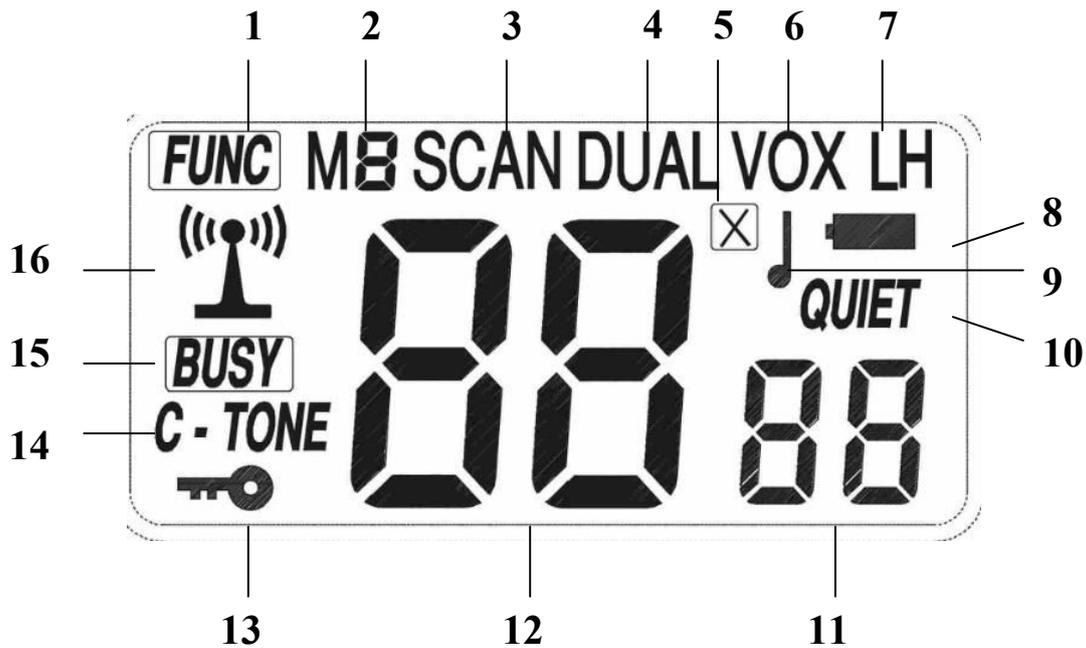
The **Zartek** is our exciting second-generation product, super-ceding the **Portocom**, now with many more features and higher specifications, but channel related communication still maintaining 100% compatibility.

## (2) MAIN FEATURES

- PLL (Phase Lock Loop) Controlled Circuitry
- 2 Memory Channels
- 5 UHF (Ultra High Frequencies) Frequencies
- 38 Quiet (CTCSS- Continuous Tone Coded Sub-audible Squelch) Codes
- Rotary Volume Control with Power On/Off
- Scanning Frequency/CTCSS
- VOX (Voice Operated Transmit) Function – Hi/Low
- Call Function – Ringer Type
- Auto Squelch Control
- Back lighted LCD (Liquid Crystal Display) Display
- Keypad Lock
- Auto Power Off (enable/disable)
- Memory Retention Function
- Power Saving Circuitry

- NI-Cd/Alkaline Charge Switch (inside battery compartment)
- External Mic/Headset
- Battery Charging
- Fixed Rubber Duck Antenna
- Water Resistant - JIS Level 4(i.e. splash proof)
- Power Source: 6V DC (4 x AA cells)

### (3) DISPLAY



1. Displays when function is enabled
2. Shows the selected memory channel
3. Displays when the scan mode is activated
4. Displays when the dual-watch function is activated
5. Displays when the working channel is set to be skipped
6. Displays when the VOX (voice operated transmit) function is activated
7. Displays L for low and H for high mic. sensitivity VOX
8. Indicates the batteries are low
9. Displays when the keypad beep function is activated
10. Displays when the quiet mode (CTCSS) is enabled
11. Shows the private quiet code (CTCSS) number
12. Shows the selected frequency
13. Displays when the keypad lock is activated
14. Displays when the Roger beep is activated
15. Displays when a call is being received or the frequency is busy
16. Displays when your radio is transmitting (PTT or Call)

#### (4) INSTALLING BATTERIES

Your radio uses standard universal “AA” size batteries. This means, unlike cell-phones & other two-way radio products, you are flexible to utilize any batteries of the “AA” size, non-rechargeable or rechargeable and at any of the available capacities (mA hours). Do not mix old and new batteries, different types of batteries (alkaline and rechargeable), or rechargeable batteries of different capacities.

1. Rotate **OFF/VOL** counterclockwise until it clicks to turn off the radio.
2. Pull down the latch on the battery compartment cover, and then remove the cover.
3. Slide **CHARGE ON/OFF** inside the battery compartment to **OFF** (for alkaline batteries) or **ON** (for rechargeable batteries).
4. Install 4 “AA” batteries according to the polarity symbols (+ and -) marked inside.
5. Replace the cover, and then push the latch up until it clicks.
6. When  (low battery icon) appears, replace or recharge the batteries.

**Caution:** If you do not plan to use the radio for a month or longer, remove alkaline batteries. Batteries can leak chemicals that can destroy electronic parts.

#### (5) RECHARGING BATTERIES

**Warning:** Do not attempt to charge alkaline batteries. Standard, non-rechargeable batteries can get hot or explode if you try to recharge them.

1. Pull out the rubber cover from **MIC/CHRG** and connect the adaptor’s barrel plug to the radio’s **MIC/CHRG** jack, then plug its other end into a standard mains AC outlet power source.
2. Charging time will depend on the capacity of batteries used. The charging rate is at approximately 100mA per hour, so the 1000mAHour batteries supplied with your radio will require between 10-12 hours to fully charge. 1800mAH batteries would require between 20 to 24 hours to fully charge.
3. Do not **extensively** overcharge as this can limit the charging cycles of your batteries(i.e. number of times recharging them) & eventually damage them. This refers more to the higher capacity Nickel Metal Hydride batteries. The Nickel Cadmium batteries your radio is supplied with are more rugged to withstand overcharge.

**Note;** 5% Transmit, 5% Receive and 90% Standby will allow 1000mA batteries to last about 30 hours in your radio before recharging. Higher capacity batteries will proportionately last longer.

Note; Transmitting the radio whilst charging batteries will fuzz the audio, but will do no damage.

#### (6) USING THE BELT CLIP

To use the belt clip, slide the clip down onto the tabs on the back of the radio until it clicks. To detach the belt clip, lift up the tab on the belt clip and slide it up.

## 7) OVERVIEW

**KEY LOCK/PTT**-To transmit, hold down continuously with transmit icon displayed, then speak into the microphone. Release when you have finish talking to receive response.



**FUNC/MON** - Hold down for 3 seconds to hear all activity on a frequency, even weak signals. Release to turn auto squelch back on.

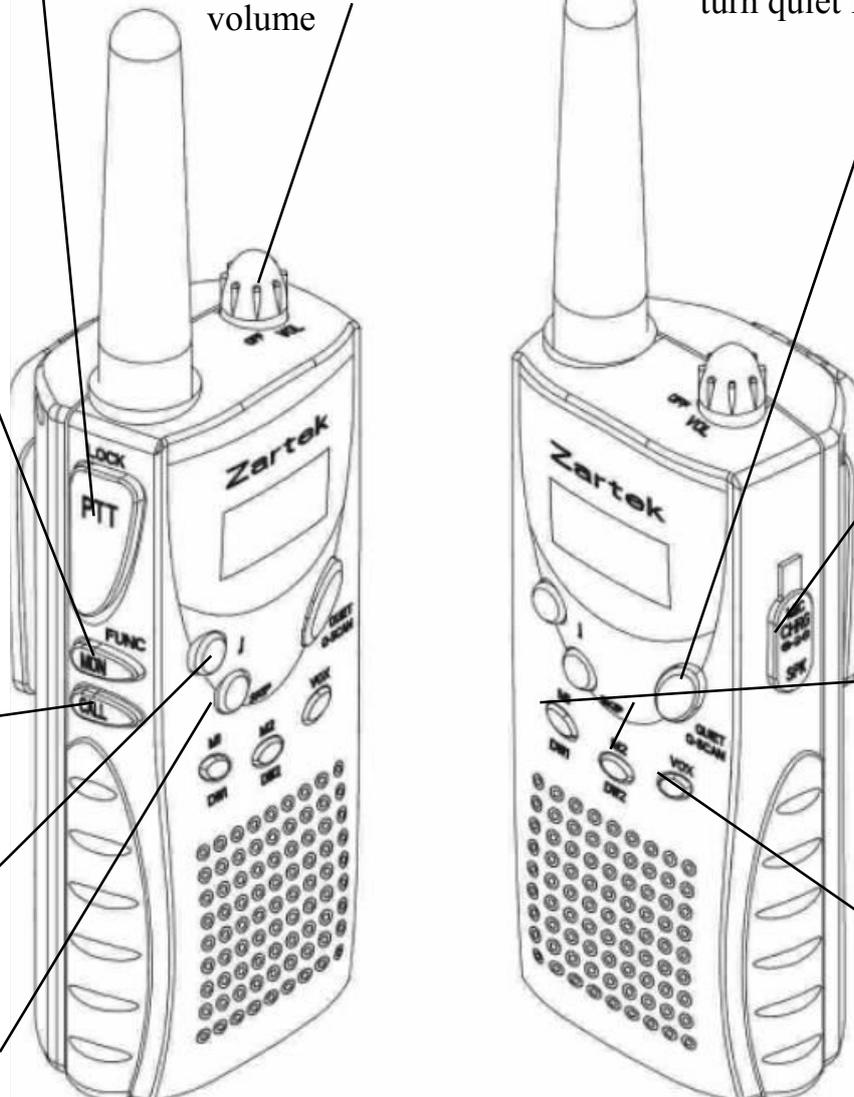
**OFF/VOL** -Rotate to turn your radio on and off and adjust volume

**Q-SCAN/QUIET**- Hold down to set the quiet code. Press to turn quiet feature on or off.

**MIC/CHRG/SPK**- You can connect an external microphone and speaker accessory here. The smaller 2.5mm hole is the charger input as well.

**M1/DW1 and M2/DW2**- Dual-Watch and memory channels

**VOX**- Press to turn VOX feature on or off. Continue to hold down for 3 seconds to toggle between high and low microphone sensitivity.



**CALL** -Hold down to send a page to other radios set to the same channel as yours. A call ringing tone is heard on all the radios.

Scroll or step **UP**- Sets the frequency

Scroll or step **DOWN**- Sets the frequency.

## (8) SELECTING A CHANNEL

There are 190 communication channels to choose from on your **Zartek** two-way radio. This is made of a combination of **5** different frequencies each

having **38 QUIET (CTCSS) CODES**. The CTCSS code is used to control the receiver squelch. It filters out all unwanted messages, interference and noise. They also let you talk and listen to other radios set to the same frequency and quiet code. This is like having a sub-channel in a frequency, giving you greater communication flexibility. When you set a quiet code and turn on this feature, you can communicate with anyone who has a radio set to the same frequency and code. If one of the 5 frequencies are busy, then **BUSY** will appear on the screen.

Press the **PTT** (Press To Talk) keypad continuously to transmit, holding the radio in a **vertical** position with its microphone 2 to 4cm away from your mouth.

The transmitter icon  will appear.

### (9) SELECTING A FREQUENCY

To step up in frequency press keypad ▲

To step down in frequency press keypad ▼

### (10) SELECTING A QUIET (CTCSS) CODE

1. Hold down **QUIET/Q-SCAN** keypad until **QUIET** appears and the quiet code flashes.
2. Repeatedly press (or hold down) ▲ or ▼ until you see the code number you want to use.
3. Press **QUIET/Q-SCAN** keypad to store the code.
4. To turn on or off the quiet code feature, press **QUIET/Q-SCAN** keypad.  
**QUIET** appears when the feature is on.

**Note:** We recommend that you select a quiet code between **7** and **30**. If you select a code below or above that range, you must wait about **1** second after holding the **PTT** keypad before you start talking.

### (11) USING MEMORY CHANNELS

You can store channels in **M1** and **M2** for immediate use by setting the required channel and pressing **M1** or **M2** until the **M1** or **M2** appears on the screen. Press again to exit.

Press **M1** or **M2** to switch to the channel stored in that memory when required.

Press **M1** or **M2** again to exit the memory channel.

### (12) USING DUAL-WATCH CHANNELS

You can set your radio to monitor both the **current channel** and the channel stored in **M1/DW1** or **M2/DW2** simultaneously. This gives you the ability to participate in the activities of both channels

1. Select your required current channel.

2. Hold down **FUNC/MON** and press M1/DW1 or M2/DW2 simultaneously to recall memory channel. **DUAL** appears and the two channels appear alternately. The radio checks the two channels and locks on to the active one until the signal disappears, then reverting back checking for activity.
3. To participate in one of the active channels, press the **PTT** to lock on and then **again** a second time to talk. Once locked on the radio will not revert back to dual watch after the activity has stopped.
4. Press any key to stop the dual watch feature.

### (13) SETTING THE KEYPAD BEEP

You can set the radio so it sounds a beep when you press any keypad except **PTT** and **CALL**.

To turn the keypad tone on or off, hold down **FUNC** keypad and press .

The  (beep icon) appears when keypad beep is on.

### (14) USING AUTO POWER – OFF

You can set the radio to automatically turn off if it is idle for about 2 hours.

Press any key to turn it back on.

Hold down /**SKIP** while turning on the radio to turn this feature on or off. **AP ON** appears when the feature is on. **AP OFF** appears when the feature is off.

### (15) USING KEY-PAD LOCK

To lock or unlock all “feature changing keypads” on your radio, hold down **FUNC/MON** keypad and press **LOCK/PTT**.

When the keypads are locked,  (key icon) appears. If the keypad beep is on, the radio beeps twice when you press any locked keypad.

### (16) USING THE “ROGER” BEEP

The Roger beep (or Over-Tone or C-Tone as sometimes referred to) is the tone sent at the end of transmission once the **PTT** keypad is released. This indicates to the receiving end that the transmitter has completed the message and is now waiting for a response. This eliminates saying “over” at the end of each conversation.

Hold down the **PTT** keypad while turning on the radio to turn the feature on or off.

If the feature is active, **C-TONE** appears and the person you are communicating with hears the tone trailing the transmission in a conversation.

### (17) RESETTING THE RADIO

If the radio stops operating properly, hold the **CALL** keypad down while turning the radio on in order to reset the radio to its original factory settings.

## (18) SCANNING FREQUENCY

To scan through the frequencies, hold down ▲ or ▼ for about 2 seconds. **SCAN** appears. The radio automatically scans through the frequencies and pauses on each active frequency. Press ▲ or ▼ to change the scan direction. Press any key other than ▲ or ▼ to stop scanning. To skip a channel before scanning, press ▲ or ▼ to select the desired frequency. Hold **FUNC/MON** keypad down and press ▼/**SKIP**. **X** (Skip icon) appears. To resume scanning with the skipped frequency again, select the skipped frequency, hold **FUNC/MON** keypad down and press ▼/**SKIP**. **X** (Skip icon) disappears.

## (19) SCANNING QUIET (CTCSS) CODES

After locating an active frequency, you may want to find the associated quiet code to identify the active channel.

Press **QUIET/Q-SCAN** keypad to turn on quiet tone feature. **QUIET** appears. Hold down **FUNC/MON** and press **QUIET/Q-SCAN** keypads simultaneously. When your radio receives a signal from another radio with the same quiet tone, it will stop scanning and lock on. Scanning resumes after the signal disappears. Press any keypad to stop scanning.

## (20) VOICE OPERATED TRANSMIT (VOX)

The **ZARTEK** has innovative state-of-the-art technology not seen in other two-way radios with its dual level built-in VOX function. Operation can be with **OR** without an external headset/mic. The VOX feature replaces your PTT keypad as transmit is automatically activated by sound. This turns your radio into hands free “walk & talk” with accessory headset/mic **OR** remote two-way monitor without. **H** on screen indicates high microphone sensitivity used in low noise application and **L** indicates low, used in high noise applications i.e. higher audio volume to trigger.

1. Press **VOX** keypad to activate feature on and off.
2. When activated either **L** or **H** will appear
3. To toggle between **L** or **H** continue pressing **VOX** keypad for more than 2 sec.

**Note;** All **ZARTEK** external headset/mic accessories function with the VOX feature active or can be used by pressing PTT on radio without VOX feature active.

## (21) CARE & SAFTY

To clean the radio, wipe with a soft cloth dampened with water. Never use solvents or cleaners on the radio, they can harm the body and leak inside, causing permanent damage. Although your radio is splash proof it is not waterproof. If the radio gets wet, turn it OFF and remove batteries immediately. Dry battery compartment to minimize potential water damage. Leave cover off battery compartment and do not use until completely dry.

## (22) WARNING

Do not operate radio in hazard environments. Explosion or fire may result. Do not operate radio near unshielded electrical blasting caps. Under certain conditions, radio 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 your radio off”. Construction crews often use remote control RF devices to set off explosives.

## (23) SPECIFICATIONS

### General

<b>Number of frequencies</b>	<b>5</b>
<b>Number of Quiet Codes CTCSS</b>	<b>38</b>
<b>Modulation Type</b>	<b>FM</b>
<b>Antenna Impedance</b>	<b>50 Ohm</b>
<b>Operating Temperature</b>	<b>-20 to +55C</b>
<b>Dimensions</b>	<b>121.5 x 55 x 38 mm</b>
<b>Weight (without batteries)</b>	<b>145g</b>
<b>Casing</b>	<b>High Impact materials</b>

Receiver	Unit	Limit
<b>Frequency range (simplex)</b>	<b>MHz</b>	<b>463.975 To 464.375</b>
<b>Intermediate Frequency 1st</b>	<b>MHz</b>	<b>21.7</b>
<b>2nd</b>	<b>KHz</b>	<b>450</b>
<b>Sensitivity At 12dB Sinad</b>	<b>uV</b>	<b>≤0.5</b>
<b>CTCSS Sensitivity</b>	<b>uV</b>	<b>1</b>
<b>Squelch Sensitivity Threshold</b>	<b>uV</b>	<b>≤0.5</b>
<b>Spurious Response Atten</b>	<b>dB</b>	<b>≥65</b>
<b>Adjacent Channel Rejection</b>	<b>dB</b>	<b>≥55</b>
<b>Image Rejection</b>	<b>dB</b>	<b>≥65</b>
<b>Hum And Noise At 1.5KHz Dev.</b>	<b>dB</b>	<b>30</b>
<b>Max. Audio Output Power</b>	<b>mW</b>	<b>≥250</b>
<b>Audio Distortion</b>	<b>%</b>	<b>≤5</b>
<b>Working Voltage</b>	<b>V</b>	<b>6(4×AA)</b>
<b>Min. Working Voltage</b>	<b>V</b>	<b>≤4</b>
<b>Low Battery Indicator</b>	<b>V</b>	<b>4.0±0.2</b>
<b>Current Drain At Max. Power</b>	<b>mA</b>	<b>≤150</b>
<b>Current Drain at Standby Mode</b>		
<b>Saving Off</b>	<b>mA</b>	<b>≤60</b>
<b>Saving On (Average)</b>	<b>mA</b>	<b>≤25</b>

<b>Transceiver</b>		
<b>RF Power Output</b>	<b>mW</b>	<b>500</b>
<b>Max. Dev. (With CTCSS)</b>	<b>KHz</b>	<b>≤2.5</b>
<b>CTCSS Deviation</b>	<b>KHz</b>	<b>≤0.8</b>
<b>Hum And Noise At 1.5KHz Dev.</b>	<b>dB</b>	<b>≥28</b>
<b>Modulation Distortion (1.0KHz Dev.)</b>	<b>%</b>	<b>≤5</b>
<b>Spurious/Harmonic Emissions</b>	<b>dB</b>	<b>≥63</b>
<b>Frequency Tolerance</b>	<b>KHz</b>	<b>±1.5</b>
<b>Mic Sensitivity</b>	<b>mV</b>	<b>&lt;10</b>
<b>Current Drain</b>	<b>mA</b>	<b>400</b>
<b>Acoustic Mic Sensitivity</b>		
<b>VOX Hi at 1KHz Signal</b>	<b>dBA</b>	<b>80±4</b>
<b>VOX Lo at 1KHz Signal</b>	<b>dBA</b>	<b>89±4</b>

#### (24) ACCESSORIES

- GE-230 ..... Vehicle Charging adaptor
- GE-231 ..... Headset with boom microphone
- GE-232 ..... Earphone with in-line microphone
- GE-233 ..... Earphone with throat microphone
- GE-234 ..... Carry case, webbing, with adjustable shoulder strap
- GE-235..... Battery pack, super 1800mA NiMH(Nickel Metal Hydride)

#### (25) WARRANTY

This product is warranted by Zartek against manufacturing defects in materials and workmanship under normal use for a 12 month period from date of purchase via our authorized appointed dealers.

*Manufactured to meet ICASA technical requirements for Zartek in South Africa and the FCC for RadioShack Corporation in the United States of America.*

*For further information contact **zartek@global.co.za***

# ***Zartek***

## PERSONAL TWO-WAY RADIO

**AUTHORISED DEALER**

**DATE PURCHASED**

**SERIAL NUMBER**