

**RTS2**

# RTS

FC CE



## DV-3140UV

### Dual Band Handheld RADIO



# THANK YOU!

Thank you very much for choosing our **RTS2** transceiver will provide you with reliable, clear and efficient communication service. The transceiver introduces innovative DSP digital signal processing technology, high degree integration, it is including kinds of professional function, best stability and great reliability as well as exterior smooth lines, novel, fashionable, sturdy and durable.

The transceiver includes plenty of TX, RX channels, as well as UHF and VHF standby modes which are able to realize dual PTT functions. 51 groups of CTCSS encode/decode and 1 group of user-defined CTCSS encode/decode, 1024 groups of DCS encode/decode, 5TONE/DTMF encode/decode, built-in radio functions, etc..It is a meticulous build functional and Multi frequency band radio for radio amateur and commercial users.

User Manual Applied to: DV-3140UV  
Programming Software: DV3140UV

## PROGRAM CAUTIONS:

When programming the transceiver, read the factory initial data first, then rewrite the frequency and signaling etc., otherwise errors may occur because of different frequency ranges involved.

## SAFETY INFORMATION FOR USER

**RTS** transceiver is excellently designed with advanced technology. Please observe the following precautions to perform your obligation, prevent personal injury and ensure the safety of transceiver usage.

1. Keep the transceiver and accessories away from children.
2. Please do not try to open or modify the transceiver without permission, non-professionals process may also cause damage.
3. Please use assorted battery and charger to avoid damage.
4. Please use assorted antenna to ensure the communication distance.
5. Please do not expose the transceiver to long period of direct sunlight, nor place it close to heat appliances.
6. Please do not put the transceiver in excessively dusty or humid areas.
7. Do not use harsh chemicals, cleaning solvents to clean the transceiver.
8. Do not transmit without antenna.
9. When using this transceiver, we recommend transmitting for 1 minute then receiving for 4 minutes. Continuous transmitting for long time or working in high power will heat the back of the transceiver. Do not place the transceiver's hot back close to any surface of plastic.
10. If any abnormal odor or smoke detected coming from the transceiver, turn off the power and take off the battery pack and its case. Then contact local **RTS** dealers.

### ATTENTION:

All tips above apply to accessories of your **RTS** transceiver. If any device cannot work normally, please contact local **RTS** dealers.

If you use any accessories made by other companies, **RTS** Company does not guarantee the operability and safety of the transceiver.

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Carefully unpack the transceiver. We recommend you to identify the items listed in the following table before discarding the packing material. If any items are missing or have been damaged during shipment, please contact dealers immediately.

### « Supplied Accessories

Item	Quantity
Antenna	1
Li-ion Battery Pack	1
Battery Charger	1
AC adaptor	1
12V Car Charger	1
Belt Clip	1
Instruction Manual	1

# STANDARD ACCESSORIES/OPTIONAL ACCESSORIES

## Standard Accessories



Antenna\*1  
QA09UV1  
155/435MHz



Li-ion Battery Pack  
1500mAh



Charger



AC Adaptor  
(12V/500mA)



Belt Clip  
BC01



Instruction  
Manual

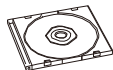
\* Note: For frequency band of antenna, please refer to label indicated in the bottom of the antenna.

\* Note: Car Charger and Charger should be used together.

## Optional Accessories



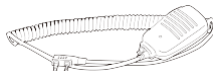
USB Programming  
Cable PC03



Programming Software  
DV3140UV



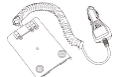
Earphone  
HS03



Handheld Microphone  
QHM22



Hand Strap  
GS01



Battery Pack for Car  
charger CPS01



Car Charger CPL01\*2



Li-ion Battery Pack  
1800mAh



Cloning Cable  
CP-04

### 《《 Charging Operation

The battery pack is not charged at the factory; please charge it before use.

Charging the battery pack for the first time after purchase or extended storage (more than 2 months) may not bring the battery pack to its normal operating capacity. After fully charging/discharging cycle for two or three times, the operating capacity will reach its best performance. The battery pack life is over when it's operating time decreases even though it is fully and correctly charged. Replace the battery pack.

### 《《 Charger Applied

Please use the specific charger appointed by our company. Other models may cause explosion and personal injury. After installing the battery pack, if the radio displays low battery with red flashing lamp or voice prompt, please charge the battery.

### 《《 NOTES

- ▼ Do not short the battery terminals or throw the battery into fire. Never attempt to remove the casing from the battery pack, we show no responsibility on any results caused by modifying freely without permission of our factory.
- ▼ The ambient temperature should be between 5°C and 40°C while charging is in progress. Charging **outside this range may not fully charge the battery.**
- ▼ **Always switch OFF the transceiver equipped with a battery pack before charging. Otherwise, it will interfere with correct charging.**
- ▼ To avoid interfering the charging, please do not cut off the power or take out the battery during charging.

## BATTERY INFORMATION

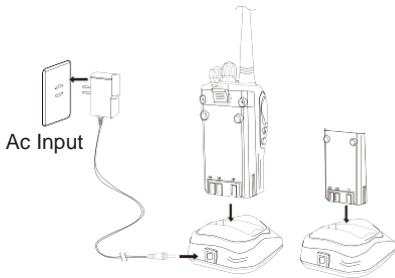
- ▼ Do not recharge the battery pack if it is already fully charged. This may shorten the life of the battery pack or damage the battery pack.
- ▼ Do not charge the battery or transceiver if it is damp. Dry it before charging to avoid danger.

### WARNING:

When keys, ornamental chain or other electric metals contact with the battery terminal, the battery may cause damage or hurt bodies. If the battery terminal short circuit it will generate a lot of heat. Take care when carrying and using the battery. Remember to put the battery or radio into insulated container. Do not put it into metal container.





## How to Charge

1. Plug the AC adaptor into the AC outlet, and then plug the cable of the AC adaptor into the DC jack located on the back of the Charger. The Indicator lights orange (1s) and then goes out----waits to charge.
2. Plug the battery or transceiver into the charger. Make sure that the battery terminals are in contact with charging terminals well. The Indicator turns into twinkling red----Pre-charging begins.
3. After pre-charging for about 5 minutes, the indicator will stop twinkling----charging begins.
4. It takes approximately 4 hours to fully charge the battery. When the lamp lights green, the charging is finished. Remove the battery or the transceiver equipped with battery from socket.



NOTE: When charging a power-on transceiver equipped with battery, the indicating lamp will not turn into green to show the fully charged status. Only when the transceiver is switched off, can the lamp indicate normally. The transceiver consumes energy when it is power-on, and the charger can not detect the voltage when the battery has been fully charged. So the charger will charge battery in constant voltage and fail to indicate correctly whether the battery has been charged fully.

### 5. Charging Process

Charging Status	Indicator Status
Standby (Self-examine lights orange 1second when power on)	 None
Pre-charging (Pre-charging stage)	 Red light twinkles for about 5 minutes
Charging (Charge in a constant current)	 Lights red for about 4 hours
Fully charged (Charge in a constant voltage)	 Lights green

### 6. LED Indicator:

STATUS	Self-Examine When Power on	No Battery	Pre-charging	Charge Normally	Fully Charged	Trouble
LED	Orange (for 1 second)	None	Red Light Twinkles for 5 Minutes	Red	Green	Red twinkles for a long time

NOTE: Trouble means battery heating, battery short-circuit or charger short-circuit.

### 《《 Normal Charging Tips

1. **Self- Examination:** When charging, orange light twinkles for 1 second and goes out, which means the charger has passed its self-examination and it can charge the battery normally. If the light remains orange or the red light twinkles, it means the charger cannot pass its self-examination or charge the battery.
2. **Trickle Pre-Charging:** If red light twinkles when battery is inserted into the charger, it means the remnant voltage is low and the charger is trickle-charging the battery (Pre-Charging Status). The charger will automatically turn into normal charging when the battery reaches a certain electric quantity, And if the red light stops twinkling, it means the remnant voltage meets a certain electric quantity, the charger will charge the battery normally.

#### NOTE:

Trickle charging (Pre-Charging Status) time cannot beyond 30 minutes. If the indicating lamp still twinkles after 30-minute trickle-charging, it means that the charger cannot charge the battery. Please check whether the battery or charger is damaged.

### 《《 How to Store the Battery

1. If the battery needs to be stored for a long period, the battery should be removed from the radio. It's state of charge should be 50-100% of full charge.
2. It should be kept in low temperature and dry environment.
3. Keep it away from hot places and direct sunlight.

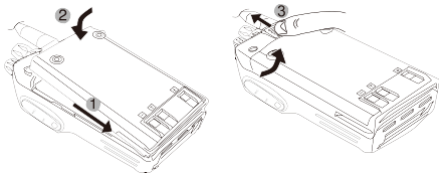


### WARNING:

- ▼ Do not short circuit battery terminals.
- ▼ Never attempt to remove the casing from the battery pack.
- ▼ Never assemble the battery in dangerous surroundings, spark may cause explosion.
- ▼ Do not put the battery in hot environment or throw it into fire, it may cause explosion.

### 《《 Installing / Removing the Battery

1. Match the three grooves of the battery pack with the corresponding guides on the back of the transceiver and push.
2. Press the battery pack until the release latch on the top of the transceiver locks. After hearing a “click” sounds, the battery has been locked.
3. To remove the battery pack, slide up the release latch and remove the pack away from the transceiver.



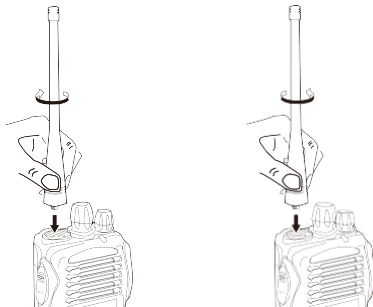
### 《《 Installing / Removing the Antenna

#### ■ Installing the Antenna:

Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.

#### ■ Removing the Antenna:

Turn the antenna anticlockwise to remove it.



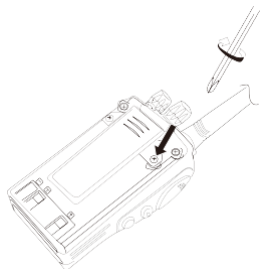
## 《《 Installing / Removing the Belt Clip

### ■ Installing the Belt Clip:

Place the belt clip to the corresponding grooves on the back of the transceiver, and then clockwise screw it.

### ■ Removing the Belt Clip:

Anticlockwise turn the screws to remove the belt clip.

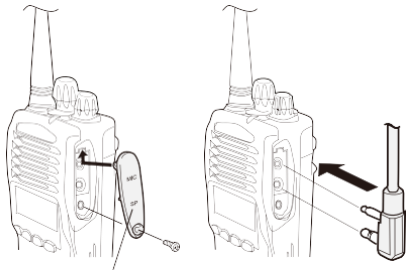


## 《《 Installing Optional Speaker / Microphone

Unveil the MIC-SP jack cover and then insert the Speaker/Microphone plug into MIC-SP jack.

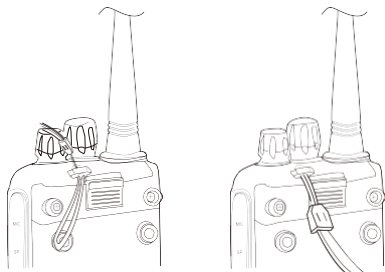
### NOTE:

Note: The transceiver is less water resistant while using the Speaker/Microphone.



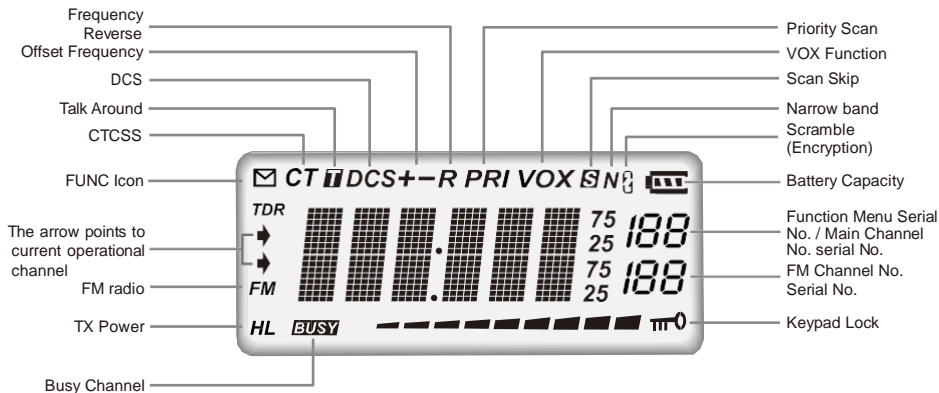
### ◀◀ Installing/ Removing the Hand Strap

Slide the loop of the hand strap through the eyelet on the upper rear of the transceiver, pull the entire hand strap through the loop to secure the hand strap in place.



## « LCD Display

On LCD display screen, you will see various icons which stand for the selected functions and sometimes you may forget the meaning of them. Here you will find the following table extremely useful.



NOTE:

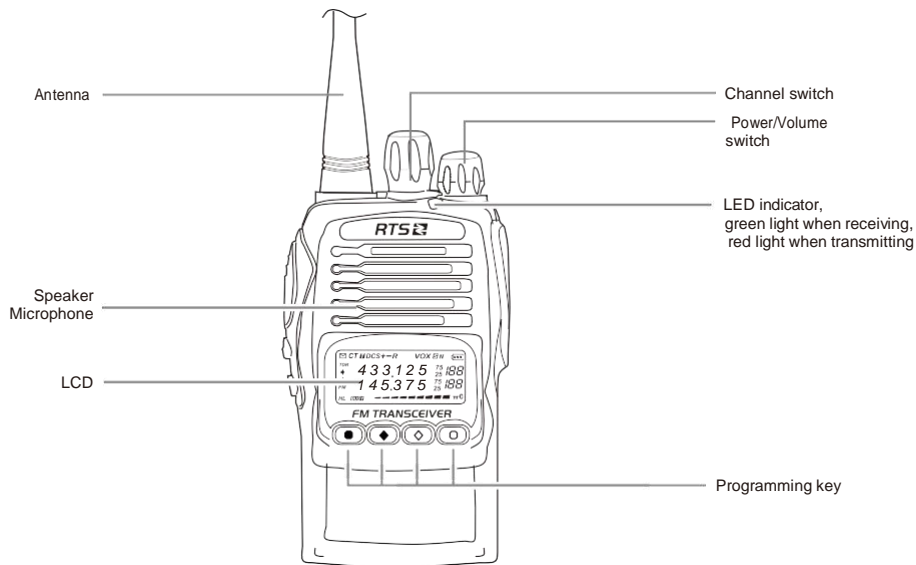
Battery capacity indicator(full)

Battery capacity remnant

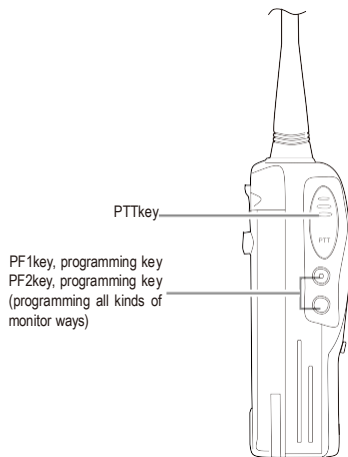
No power, replace battery pack or charge battery

Real time display receiving signal strength/Power Indicator

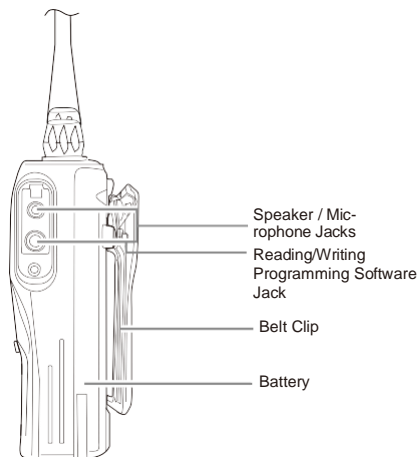
## Front Panel



« Side Panel



**Left Panel**



**Right Panel**

## BASIC OPERATIONS

### « Turn the Radio On & OFF

Under power-off state, turn [POWER]/ [VOLUME] clockwise to turn on the transceiver.

Under power-on state, turn [POWER]/ [VOLUME] anticlockwise to turn off the transceiver.

### « Adjusting Volume

Under power-on state, turn [POWER] / [VOLUME] to adjust volume. Clockwise-up, anticlockwise-down.

When adjusting the volume, user can press the key programmed as Squelch Off to monitor volume level.

NOTE: Press the side key programmed as Squelch Off to monitor the background noise. Turn [POWER] / [VOLUME] to adjust the volume.

### « Channels Selection

Under standby, turn channel selector knob to choose the desired channel, Turn clockwise to increase the channel, anticlockwise to decrease the channel. The arrow directs the operational channel.

NOTE: This transceiver has 200 channels for use, if there is a null channel between 2 channels, when manually select channel, transceiver will skip null channel, enter into next channel directly.



## ◀◀ Receiving

You can hear the transmitting party's calling when the channel you are operating is called and the LED light turns green/blue.

**NOTE:**

You may not receive the calling if you set a high squelch off level of the transceiver.

If current channel has been programmed with signaling, you can only hear the call from a same signaling, other calls cannot be heard.





## ◀◀ Transmitting

Before transmitting, make sure that the channel you want to use is not in busy state through monitoring for a while by pressing the programmed Momentary Squelch off [PF1] / [PF2] key. Under these conditions, press the [PTT] key and speak into microphone. Please keep around 2.5-5cm distance between microphone and your lip. And please speak in normal tone to make the receiver obtain best tone quality.

**NOTE:**

Press PTT key, LED indicator shows red light, means transmitting now, release PTT key to receive signals.

## SHORTCUT OPERATIONS

The [PF1]、[PF2]、、、 and  keys are programmable. They can realize the following functions by programming software.

### Switch between Main Band and Sub Band

Press the programmed key of "MAIN" to switch between main band and sub band, arrow directs to the main band.

### Call

Under standby, press the programmed key to transmit the pre stored DTMF/5TONE signaling.

### Lone worker

Press the programmed key of Lone worker, LCD displays "ALONE ON", radio will start the Lone worker mode. When reach the pre-set remind time, radio will emit voice prompt, user can press any key to re-timing, otherwise when the remind time finished, radio will enter into auto-alarm state. Restart the radio to exit the alarm.

NOTE: Lone worker function is relating to "Lone worker mode" of "Emergency information" in PC software, when programming the "Lone worker" key, it must check on the "Lone worker mode" and setup the timing.

### Monitor

Under standby, press the programmed key of monitor, the transceiver emits "DU" beep and enters into

monitor state, "BUSY" icon fl CTCSS/DCS/5TONE/DTMF decode will be ignored in monitor state, transceiver can monitor signal of the other party as long as receiving the matched carrier wave. Press this key again, transceiver emits "DU DU" beep, the "BUSY" icon disappears, transceiver exits the monitor state.

### « Scan

Scan function can be used for monitoring every channel of current group.

Under standby, press the programmed scan key, transceiver emits "DU" beep and enters into scan state. It scans channels in scan list one by one. When one channel receives a matching signal, the transceiver will temporarily stay in this channel and LED indicator will light on. Press the scan key again, transceiver exits scan.

### « Skip a Channel in Scan List

Under standby, press the programmed key of SKIP, transceiver emits "DU" beep, LCD displays "S" icon, the channel has been removed from Scan List. Press the SKIP key again, "S" icon disappears, the channel will resume in scan list.

### « Delete Noisy Channel Temporarily

Use this function to delete the noisy channel or occupied channel from Scan List temporarily. When transceiver stay in a scan channel, press the programmed key of Nuisance Channel Temporary Delete, transceiver emits "DU" beep and delete the channel from Scan List. This function is invalid if only one channel in Scan List. Restart radio, the channel will resume in scan list.

### 《《 Squelch Levels Setup

This function is used for setup the receiving signal intensity. The other party calling can be heard when the receiving signal intensity reaches a certain level, otherwise transceiver will remain mute. Under standby, press the programmed key of Adjust Squelch Level, transceiver emits "DU" beep, LCD displays Squelch level "SQL XX", rotate channel switch to choose desired level. Total 10 squelch levels, 00-09, 00 means the background noise is always on.

### 《《 Squelch off

Under standby, press the programmed key of Squelch off, the squelch circuit is not mute, background noise can be heard. Press this key again, transceiver emits "**DU DU**" beep, the squelch circuit becomes mute. By using this function you can monitor the weaker signal which is hard to receive.

### 《《 Instantaneously Squelch off

Under standby, press and hold the programmed key of Instantaneously Squelch off, transceiver emits "DU" beep and the squelch circuit is not mute, background noise can be heard. Release this key, transceiver emits "DU DU" and the squelch circuit is mute. By using this function you can monitor weak signal which is hard to receive.

### 《《 Frequency Reverse

Under standby, press the programmed key of Reverse, LCD displays "REV ON" and enters into

Frequency Reverse state, press key again or wait 1second, radio will return back to standby state, LCD displays "**R**" icon.

When frequency Reverse function is on, the current channel RX frequency will be switched to TX frequency, the CTCSS or DCS signal which has been setup will be also switched. Repeat the above operation, the transceiver exits reverse functions with LCD displays "REV OFF" , when return back to standby state, "**R**" icon disappears.

NOTE: Under Frequency reverse state, transceiver cannot communicate with other transceivers through repeater.

### ⏪ Keypad Lock

In order to prevent wrong operation, you can make use of key lock function.

Under standby, press the programmed key of Key Lock, screen displays "🔒" icon, key lock function is enable. Repeat the above operations, transceiver exits key lock function when "🔒" icon disappear.

### ⏪ TX Power Switch

Under standby, press the programmed key of "Adjust Power Level", user can choose desired power in current channel.

When screen displays "**H**" icon, it means high power is choose, current channel transmits at high power.

when screen display "**L**" icon, it means lower power is choose, current channel transmits low power.

Power off transceiver, press the programmed key of Adjust Power Level, transceiver emits "DU" beep, all channels change to high power, restart the transceiver, power resume to preset state.

### 《《 Whisper

When this function is enabled, other parties can hear a higher voice as long as you speak in a lower voice.

Under standby, press programmed key of whisper, screen displays "**EYE ON**", whisper function is enabled, press any other key or wait 1 second, transceiver will return back to standby state. Repeat above operation, whisper function is disabled when screen displays "**EYE OFF**".

### 《《 VOX level setup

This function is used for setup VOX transmit volume, volume must be higher when VOX level is higher. Under standby, press programmed key of VOX level, screen displays "VOX", rotate channel switch to select need VOX level.

Total 10 levels, 1-10, and off. When VOX function is off, "**VOX**" icon disappears.

### 《《 Battery Capacity Inquiry

Under standby, press programmed key of Voltage Display, transceiver emit "DU" beep, LCD displays current battery voltage. Press the key again, transceiver emits "DUDU" beep and return to standby state.

### 《《 Priority Channel

Under standby state, press the programmed key of Priority Channel, transceiver emits "DU" beep

and switch to the preset priority channel, signal can be transmitted or received in the priority channel. Rotate the channel switch or press the key again to exit.

### 《《 Emergency Alarm

Under standby state, hold pressing [PF1] key which is programmed with ALARM function until LCD displays "ALARM", Emergency alarm function is started. This transceiver has 4 Alarm modes for optional, can be setup in programming software. Power off transceiver to exit Alarm.

### 《《 CTCSS/DCS Encode/Decode Setup

Under standby state, press programmed key of CTCSS SELECT, LCD displays "**CT DEC**", "**CT**" and "**T**" icon, rotate channel switch to choose desired CTCSS encode/decode setup, press PTT key save and exit.

Press the key again, LCD displays "**DCSDEC**" and "**DCS**" icon, rotate channel switch to choose desired DCS encode/decode, press PTT key save and exit.

Press the key again, "**DCS**" icon disappears, the CTCSS/DCS encode/decode is OFF.

Note: This function is only available for UHF. If you want to setup VHF, please edit by PC software.

### 《《 FM radio

Under standby, press programmed key of FM radio, transceiver emits "DU" beep and switch into FM

## SHORTCUT OPERATIONS

radio, LCD displays "FM ON" and "FM" icon, rotate channel switch to choose desired FM channel. Press this key again, FM icon disappears, transceiver returns back to standby state.

### 《《《 Optional Signal Encode list

Under Standby State, press programmed key of Call list, if current channel setup DTMF signaling or no signaling, it will show DTMF encode list, turn channel switch to choose desired encode, press PTT to transmit the encode. If current channel setup 5Tone signaling, it will show 5Tone encode list, turn channel switch to choose desire encode, press PTT to transmit the encode.

NOTE: DTMF/5TONE encode must be programmed in PC software, 16groups of DTMF, 100groups of 5TONE. When the 5TONE encode with name, transceiver will show the name, otherwise will show "CALL XX".

### 《《《 Single Band Switch

To reduce the sub band interfere when using main band, you can use the single band switch function to shut off the sub band rapidly.

1. Under standby, press programmed key of "MAIN DISP", transceiver displays upper channel, shut off the bottom channel.
2. Press the key again, transceiver displays the bottom channel, shut off the upper channel.
3. Press the key again, return to dual display.



### 《《 Resume Factory Default

Once transceiver works abnormally for wrong operations or wrong programming, user can start this function to resume all functions and channels as Factory Default.

Turn off transceiver, hold pressing the programmed key of "Initialize" and power on transceiver, until LCD displays "RESET", release the key, transceiver emits "DU" beep, all the functional setup and channel setup resume to factory default.

NOTE: This function is default off, if need to open this function, please contact with dealer or edit by PC software.

### 《《 Cloning Cable

This feature will copy the programmed data and parameters from the master unit to slave units. It copies the parameters and memory program settings.

Connection: Use optional CP04 cloning cable, connect Read/write frequency port on both master and slave, setting and programing as the requirement below.

[Settings: Master side]

**11** Press the programmed key of "Clone" to Power on, the display shows "CLONE", the master unit enters into copy mode .

**21** Press PTT key, the display appears "CLONE XX" XX stands for the data amount being cloned.

**31** When the data transfer is completed, slave unit restarts, the master unit display appears "CLONE".

**41** Master unit remain copy mode state to prepare for the next copy, if reboot the master means exit

## SHORTCUT OPERATIONS

copy mode to return to normal mode.

[Settings: Slave side]

**1I** In the standby mode, when the slave receives the data, the display shows "**CLONE XX**" XX stands for the data being cloned.

**2I** When data reception is complete, the slave unit returns to normal mode and restart automatically.

**3I** Turn off the slave's power, remove the cable, insert another slave which you want to copy.

If the data is not successfully transmitted, turn off the master and slave, check if the cable connections are correct, and then repeat the whole process again.

### 《《 Auto TX

Power off transceiver, press the programmed key of Auto TX and power on transceiver, transceiver will start auto TX, no need press PTT for TX. Power off radio to exit the auto TX.

When  key short press set as SETMODE, functions as below.

### Menu 23: Squelch level setup

This function is used for set up the RX signal intensity, the call can be heard when the intensity of RX signal reach a preset data, otherwise transceiver will keep mute.

**11** Press  key to enter into function menu setup.


the

**21** Turn channel switch to choose No.23 item, LCD displays "SQL".

**31**  key to enter into next item, turn channel switch to choose desired setup.

Press

00-09, total 10 SQL levels for optional, 00 is the lowest (always on).

**41**  key to return the function menu, or press any other keys to save and exit.

Press

### Menu 24: Scan Pause Time Setup

**11** Press  key to enter into function menu setup.

the

**21** Turn channel switch to choose No.24 item, LCD displays "SCAN".

**31**  key to enter into next item, turn channel switch to choose desired setup.


Press

**5ST:** When scan a match signal, stay 5 seconds then resume scan

10ST: When scan a match signal, stay 10 seconds then resume scan

15ST: When scan a match signal, stay 15 seconds then resume scan

2SP: When scan a match signal, stay until the signal disappears 2seconds, then resume scan.

**41**       key to return the function menu, or press any other keys to save and exit.

Press

### «« Menu 25: LCD Back Light Setup

**11** Press  key to enter into function menu setup.

the

**21** Turn channel switch to choose No.25 item, LCD displays "LIGHT".

**31**  key to enter into next item, turn channel switch to choose desired setup.

Press

AUTO: Automatic, LCD back light will automatic turn off after a period of turn on.

ON: Always ON.

OFF: Always OFF.

**41**  key to return the function menu, or press any other keys to save and exit.

Press

### «« Menu 26: LCD Back Light Color Setup

**11** Press the  key to enter into function menu setup.

**21** Turn channel switch to choose No.26 item, LCD displays "COLOR".

**31**  key to enter into next item, turn channel switch to choose desired setup.

Press

BLUE: Blue color

ORG: Orange color

PUR: Purple color



**41**

key to return the function menu, or press any other keys to save and exit.

Press

## PROGRAMMING SOFTWARE INSTALLING & STARTING (TAKES WINDOWS XP AS AN EXAMPLE)

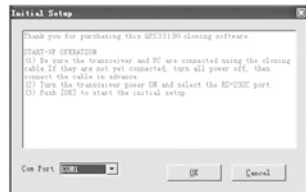
**AnyTone®**  
*We only do best radio!*

1. Double Click "DV3140UV setup.exe", then go on installing as computer command.
2. Click "START" menu of computer, choose "USB To COM" in DV3140UV item and click it. Please install USB To Comport drive program as computer command.
3. Please plug PC03 programming cable into USB port of PC device, then connect to transceiver.
4. Double click "DV3140UV" shortcut icon, or click DV3140UV item in "START" menu to open programming software interface.
5. Choose "COM Port" as computer command, then click "OK" to start programming software.

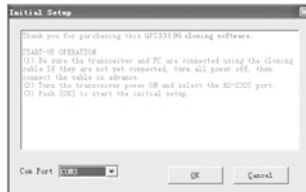
Note : In same computer, if programming cable plugs into different USB port, the COM Port number is different.

Before programming, transceiver should be turned on fi

Not turn on or turn off transceiver when it is connecting with computer, otherwise it may cause transceiver not read or write data. If this situation is happened, please shut down programming software, remove programming cable from computer, then re-plug cable into computer and re-start programming software, re-choose COM Port, the programming will work normally.



(picture 1)



(picture 2)

**NOTE:** The programming software is attached with product identifying system. In first time run, the transceiver should be connected to computer, otherwise the software can not run.



## TECHNICAL SPECIFICATIONS

General	
Frequency Range	VHF: 136-174MHz UHF: 400-480MHz (EX: 400-520MHz) FM:76~108MHz(RX)
Channel Capacity	200 channels
Channel Spacing	25KHz (Wide Band) 12.5KHz (Narrow Band)
Phase-locked Step	0.1KHz
Operating Voltage	7.4V DC $\pm$ 20%
Battery Life	More than 12 Hours (1500mAh), by 5-5-90 work cycle
Frequency Stability	$\pm$ 2.5ppm
Operating Temperature	-20°C ~ +55°C
Size	240×56×30mm (with battery pack, antenna)
Weight	240g (with battery pack, antenna)

Receiving Part		
	Wide band	Narrow band
Sensitivity(12dB SINAD)	$\leq$ 0.25 $\mu$ V	$\leq$ 0.35 $\mu$ V
Adjacent Channel Selectivity	$\geq$ 65dB	$\geq$ 60dB
Intermodulation	$\geq$ 65dB	$\geq$ 60dB
Spurious Rejection	$\geq$ 70dB	$\geq$ 70dB
Hum & Noise	$\geq$ 45dB	$\geq$ 40dB
Audio Distortion	$\leq$ 5%	
Audio Power Output	1000mW/10%	

Transmitting Part		
	Wide band	Narrow band
Power Output	6W/1W(VHF) 5W/1W(UHF)	
Modulation	16K $\Phi$ F3E	11K $\Phi$ F3E
Adjacent Channel Power	$\geq$ 65dB	$\geq$ 60B
Hum & Noise	$\geq$ 40dB	$\geq$ 40dB
Spurious Emission	$\leq$ -36dB	$\leq$ -36dB
Audio Distortion	$\leq$ 5%	

Problem	Corrective Action
No Power	A. The battery pack may be exhausting. Recharge or replace the battery pack. B. The battery pack may not be installed correctly. Remove the battery pack and install it again. C. The power switch is broken; send it to local dealers to repair. D. Battery touch is broken; send it to local dealers to repair.
Battery power dies shortly after correctly charging.	The battery pack life is finished. Replace the battery pack with a new one.
Transceiver cannot scan	The channels are not in scan list. (Professionals set it.)
All band noisy after programmed or green light always lightens	Turn on squelch when programmed. Non-professionals are advised not to adjust this function.
No sound after using microphone for a while	Earphone jack is broken. (Please contact with local dealers to repair it.)
Communication distance becomes short, and it is low sensitivity	A. Check whether the antenna is in good condition and the antenna base do not come adrift. B. Users select wrong frequency type which is not in accord with this transceiver when programming. C. Whether it has set in low power output. (Please contact with local dealers to repair it.)

## TROUBLE SHOOTING GUIDE

Cannot talk to or hear other members in your group	A. Different frequency or channel, please change it. B. Different CTCSS / DCS please reset it. C. Out of communication range.
Can not power on or frequent power-off	Check whether the battery touch is out of sharp or broken.
The receiver gets low or intermittent voice from the caller	Check whether the MIC is stoppage. (Otherwise, please contact with local dealers to repair it.)
Unstable communication with loud background noise	Out of communication range or obstruct by tall buildings or in basement and so on.
Loudspeaker become lower or with “ka ka” sound after using a certain time	Check whether the loudspeaker net is broken. Iron powder or sundries is in the loudspeaker. (Please contact with local dealers to repair it.)
Receive voice from the other party but can not transmit	Check [PTT] key. (Please contact with local dealers to repair it.)
Receiving Indicator (green light) lightens but no sound	A. Low volume, please turn on clockwise. B. Loudspeaker is broken. (Please contact with local dealers to repair it.) C. Earphone jack is broken. (Please contact with local dealers to repair it.) D. Volume switch is broken. (Please contact with local dealers to repair it.)

CTCSS Frequency Chart

1	62.5	12	94.8	23	136.5	34	177.3	45	218.1
2	67.0	13	97.4	24	141.3	35	179.9	46	225.7
3	69.3	14	100.0	25	146.2	36	183.5	47	229.1
4	71.9	15	103.5	26	151.4	37	186.2	48	233.6
5	74.4	16	107.2	27	156.7	38	189.9	49	241.8
6	77.0	17	110.9	28	159.8	39	192.8	50	250.3
7	79.7	18	114.8	29	162.2	40	196.6	51	254.1
8	82.5	19	118.8	30	165.5	41	199.5	52	user-defined
9	85.4	20	123.0	31	167.9	42	203.5		
10	88.5	21	127.3	32	171.3	43	206.5		
11	91.5	22	131.8	33	173.8	44	210.7		

## ATTACHED CHART

### 《《 1024 groups DCS frequency chart

000	001	002	003	004	005	006	007
010	011	012	013	014	015	016	017
020	021	022	023	024	025	026	027
030	031	032	033	034	035	036	037
040	041	042	043	044	045	046	047
050	051	052	053	054	055	056	057
060	061	062	063	064	065	066	067
070	071	072	073	074	075	076	077
100	101	102	103	104	105	106	107
110	111	112	113	114	115	116	117
120	121	122	123	124	125	126	127
130	131	132	133	134	135	136	137
140	141	142	143	144	145	146	147
150	151	152	153	154	155	156	157
160	161	162	163	164	165	166	167
170	171	172	173	174	175	176	177
200	201	202	203	204	205	206	207
210	211	212	213	214	215	216	217
220	221	222	223	224	225	226	227
230	231	232	233	234	235	236	237
240	241	242	243	244	245	246	247

## ATTACHED CHART

250	251	252	253	254	255	256	257
260	261	262	263	264	265	266	267
270	271	272	273	274	275	276	277
300	301	302	303	304	305	306	307
310	311	312	313	314	315	316	317
320	321	322	323	324	325	326	327
330	331	332	333	334	335	336	337
340	341	342	343	344	345	346	347
350	351	352	353	354	355	356	357
360	361	362	363	364	365	366	367
370	371	372	373	374	375	376	377
400	401	402	403	404	405	406	407
410	411	412	413	414	415	416	417
420	421	422	423	424	425	426	427
430	431	432	433	434	435	436	437
440	441	442	443	444	445	446	447
450	451	452	453	454	455	456	457
460	461	462	463	464	465	466	467
470	471	472	473	474	475	476	477
500	501	502	503	504	505	506	507
510	511	512	513	514	515	516	517
520	521	522	523	524	525	526	527
530	531	532	533	534	535	536	537



## ATTACHED CHART

540	541	542	543	544	545	546	547
550	551	552	553	554	555	556	557
560	561	562	563	564	565	566	567
570	571	572	573	574	575	576	577
600	601	602	603	604	605	606	607
610	611	612	613	614	615	616	617
620	621	622	623	624	625	626	627
630	631	632	633	634	635	636	637
640	641	642	643	644	645	646	647
650	651	652	653	654	655	656	657
660	661	662	663	664	665	666	667
670	671	672	673	674	675	676	677
700	701	702	703	704	705	706	707
710	711	712	713	714	715	716	717
720	721	722	723	724	725	726	727
730	731	732	733	734	735	736	737
740	741	742	743	744	745	746	747
750	751	752	753	754	755	756	757
760	761	762	763	764	765	766	767
770	771	772	773	774	775	776	777

NOTE: N stands for positive code. I stands for inverted code. 1024 groups of DCS in total.