# Smart Com

## Portable Transceiver

## SCV08 AND SCU08

# INSTRUCTION MANUAL

SMARTCOMM USA INC.™

*"think smart"*

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# SAFETY INFORMATION

Your portable contains a low power transmitter. Then the Push-to-Talk button is pushed it sends out radio frequency signals. The device is authorized to operate at a duty factor not to exceed 50%. In august 1996, the Federal Communications Commission (FCC) adopted RF exposure guidelines with safety levels for hand-held devices USE only the supplied antenna. Unauthorized antennas, modifications, or attachments could damage the transceiver and may violate FCC regulations.

**CAUTION! NEVER** hold the transceiver so that the antenna is very close to, or touching exposed parts of the body, especially the face or eyes, while transmitting. The transceiver will perform the best if the microphone is 2 to 4 in (5 to 10 cm) away from the lips and the transceiver is held in the vertical position.

**NEVER** operate the transceiver with a headset or other audio accessories at high volume levels.

**NEVER** short the battery terminals.

**NEVER** press the PTT key unless transmitting.

**AVOID** using or placing the transceiver in direct sunlight or in areas with temperatures below +14 F (-10 C) or above +122 F (+50 C). The basic operations, transmit, receive are guaranteed within the specified operating temperature range.

**DO NOT** modify the transceiver for any reason

**SAFETY INFORMATION**

Your transceiver generates RF electromagnetic energy during transmit mode. This radio is designed for and classified as "Occupational Use Only" meaning it must be used during the course of employment by individuals aware of hazards, ant the techniques to minimize such hazards. This radio in NOT intended to be used by the General Public, and in an uncontrolled environment.

This radio has been tested and complies with the FCC RF exposure limits for "Occupational Use Only". The radio also complies with the following standards regarding to RF energy and electromagnetic energy levels and evaluation of such levels for exposure to humans:

- FCC OET Bulletin 65 Edition 97-01 Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to radio Frequency Electromagnetic Fields.
- American national Standards Institute (C95.1-1992), IEEE Standard for Safety Levels with Respect to Human Exposure to radio Frequency Electromagnetic Fields, 3kHz to 3000 GHz.

- American National Standards Institute (C95.3-1992), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields- RF and Microwave.

**TO ENSURE THAT YOUR EXPOSURE TO RF ELECTROMAGNETIC ENERGY IS WITHIN THE FCC ALLOWABLE LIMITS FOR OCCUPATIONAL USE, ALWAYS ADHERE TO THE FOLLOWING GUIDELINES:**

- Do not operate the radio without a proper antenna attached, as this may cause damage to the radio as well as cause the RF exposure to exceed the FCC limits. The proper antenn is supplied with the radio, do not use any other antenna not approved by the manufacturer.
- Do not transmit more than 50% of the total radio use time. Transmitting more than the recommended 50% can cause FCC RF exposure requirements to be exceeded. The radio transmits when the PTT switch is pushed and the RED TX LED (indicator) is illuminated.
- Always use SmartComm USA authorized accessories (antennas, batteries, speaker microphones, belt clips, etc). Use of any unauthorized accessories can cause the RF exposure to exceed the FCC limits.
- Always keep the antenna at least 1cm (3/8 in) away from the body when transmitting to ensure that the FCC exposure limits are not exceeded. To ensure the best signal quality, hold the antenna at least 5 cm (2 in) from the mouth and slightly to one side.

**ELECTROMAGNETIC INTERFERENCE / COMPATIBILITY**

During transmissions the radio generates RF energy that can possibly cause interference with other systems or devices. To avoid such interference never operate the radio in RX or TX where signs are posted not to use transceivers. Do not use the radio in areas that are sensitive to electromagnetic radiation. Some examples of these locations are hospitals, blasting sites and airports.

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**IMPORTANT**
Please read all instructions thoroughly before operating the unit.

# INTRODUCTION

SCV08 and SCU08 are 8-Channel, State of the Art, and Synthesized Portable FM Transceivers. The SCV08 operates in the 136-174 MHz VHF band. The SCU08B operates in the 450-480 MHz UHF band.

The SCU08 operates in the UHF band with a 4 or 1 Watt RF power output. The SCV08 operates in the VHF band with a 5 or 1 Watt RF power output.
The Unit features the following:

Built In DCS Decoder/Encoder
Built In CTCSS Tone Decoder/Encoder
Busy Channel Lockout Per Channel

The Transceivers can store up to 8 channels of programmed information without the need for a Battery back up.
The radio has been programmed by the dealer. A list of channel information and radio configuration should be available from the dealer

**Optional Accessories**

*RSC-27- Dual Slot Drop in Rapid Charger*
*RSC1- Single Slot Rapid Charger*
*BPSC1l- 1000 mAH rechargeable Ni-Cad Battery*
*BPSC15L- 1500 mAH Metal Hydride*
SMSC -External Speaker/Microphone
LCSC08-Leather Carrying Case

# INSTALLATION

**BATTERY INSTALLATION AND REMOVAL**

A. To attach the battery, align the grooves on the battery case with those on the Unit and slide it into place until a “snap” is heard indicating that the battery is locked into position.

B. To remove the battery, press UP on the Release Button and slowly pull the battery OFF.

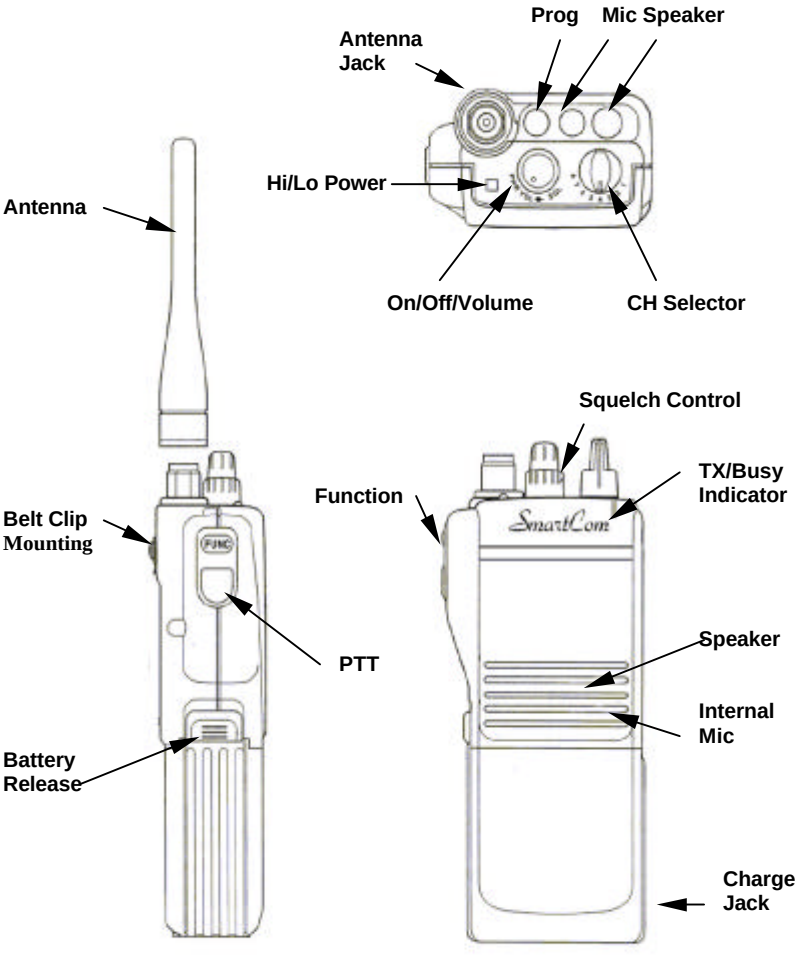
**ANTENNA INSTALLATION AND REMOVAL**

The SCV08 uses a RDSCV antenna; the SCU08 uses a RDSCU antenna.

A. To install the antenna, carefully place it on the TNC type antenna connector located on the top of the radio. Turn the antenna clockwise until it is firmly attached.

B. To remove the antenna, turn the antenna counter-clockwise until it can be lifted away from the radio.

## TRANSCEIVER VIEWS



## TRANSCEIVER DETAILS

The various controls and features are enumerated and pointed out in the views shown on page 5.

**ON/OFF/Volume Control-**Turning this control in the clockwise direction turns the Unit On. Turning it further in the clockwise direction increases the volume.

**Channel Selector**-This control is used to change the channel number.

**Squelch Control**-This control is used to eliminate speaker noise and reduce battery drain while not receiving a transmission. To squelch the Unit, turn the control clockwise.

**Antenna Connector**- The supplied helical antenna is installed on the TNC type Connector.

**TX/BUSY** -This indicator lights RED when transmitting and lights GREEN when a signal is being received or the radio is un-squelched (this is a helpful guide in setting the Squelch Control). **This indicator blinks RED when the PTT is pressed and the battery is low.**

**Speaker**- Radio's internal speaker.

**Microphone**- Radio's internal microphone.

**External Speaker Jack**- This 3.5 MM jack can be used to connect an 8-Ohm external speaker or earphone. No sound will be heard from the built in speaker when a plug is installed in this jack. To keep dust and moisture out of the radio keep the protective plug in place when the jack is not used.

**External Microphone Jack**-This 2.5 MM jack is used to connect an external microphone to the Transceiver. The internal microphone is disconnected when the external microphone is used. Keep the protective plug in place when the jack is not used.

**Programming Jack**-This is used for cloning and programming the radio.

**Antenna** – TNC Type helical wound antenna.

**Function**-The FUNC button provides the User the ability to put the Radio in one of two modes. The Two modes are Monitor Mode and Sub-Audible Tone (CTCSS/DCS) Mode.
**Push To Talk Button**- This button is used to switch between transmission and reception. To transmit, hold in this button. Releasing this button will return the Transceiver to the reception mode.

**Battery Release Button**- This button is used to lock and unlock the battery.

**Battery**- The BPSC1L -1is a rechargeable Nickel-Cadmium (Ni-Cad) type battery.

**Battery Charging Jack**-This jack is used to recharge the battery. The WCSC7 Wall Charger (included with the Radio) will fully charge the battery in approximately 20 hours if either the radio is turned off or the battery is removed from the Unit. Be sure to reinstall the protective plug when the Charger is disconnected.

**Belt Clip**- When not using the belt-clip; install the mounting screws in order to help ensure water resistance.

## OPERATION

Each time the Unit changes modes or a key is pressed, a beep is heard. This feature can be disabled by the Dealer.

## TURNING UNIT ON

1. Rotate the ON/OFF/VOL knob clockwise to turn the power on.

2. Adjust the audio's volume by turning the ON/OFF/VOL knob clockwise to increase the audio output, or counter-clockwise to decrease it. If necessary, first turn the Squelch (SQL) Control counter-clockwise until noise is heard. Then set the Volume Control to the desired level.

3. Turn the Squelch Control (SQL) clockwise until "noise" is no longer heard (squelched). The battery life is maximized if the Unit is squelched when not receiving a signal. If the Unit is programmed for widely different receive frequencies, the Squelch Control may require being turned slightly more clockwise to a setting that permits proper squelch operation for all channels.

   If the present Channel has been programmed for Busy Channel Lockout, "noise" may not be heard from the speaker. If this is the case, select a channel without BCL. If all channels have BCL, press the FUNC button until a burst of noise is heard from the speaker. You may need to repeat this procedure until the desired volume level is reached.

**STATUS INDICATOR**

The bi-color (red and green) TX/Busy LED provides a visual indication of the radio's operational status.

| LED | ON CONDITION |
|---|---|
| GREEN | Channel is Busy (in use); or not programmed (if the channel has not been programmed a beep will be heard every four seconds) |
| RED | PTT is pressed; transmitter is activated |
| Flashing RED | Battery is low when PTT is pressed. |

**CHANNEL SELECTION**
Rotate the CHANNEL SELECTOR switch until the knob's pointer is at the desired channel number. Each time the switch is turned to a different channel, a beep will be heard.

**MODE SELECTION**
Pressing the FUNC button changes the radio's mode. To select the Monitor Mode, press the FUNC button and when a burst of audio noise is heard, the radio is in the monitor mode

**TONE OPERATION**
To select the sub-audible Tone Mode, press the FUNC button and if the TX/Busy indicator blinks once and a single beep is heard, the radio is in the Tone Mode.

NOTE: The Unit can be programmed by the Dealer for sub-audible and or audible tones. Each channel may be programmed for non-tone, for the same tone or for a different tone. Each channel can have it's own unique tones on TX and RX.

If a signal with an improper or non-matching tone is received, the BUSY LED will light, but the squelch will not open and no audio will be heard.

**BUSY CHANNEL LOCKOUT**
Busy Channel Lockout (BCL) is a special Tone Mode feature. When enabled by the dealer, it prohibits monitoring or transmitting on a channel that is receiving a signal with an improper CTCSS/DCS code. No audio will be heard from the speaker, the GREEN LED will be illuminated.

## TRANSMITTER OPERATION

WARNING: In some countries, a license may be required to operate. Do Not transmit on Unlicensed channels.

WARNING: Do Not operate this Unit close to electrical blasting caps, or in an explosive Atmosphere such as fuel or solvent vapors, dust, etc.

**PROCEDURE**

1. Select the desired channel. Monitor the channel for activity before transmitting. If the BUSY LED is ON and no audio is heard, the channel is busy with another tone code.

   Press and hold in the Push-To-Talk (PTT) switch located on the left side of the Unit and speak into the radios internal microphone.

   a. If BCL is enabled and the channel is busy, a series of beeps will be heard as long as the PTT switch is held in and the radio will not transmit.

   b. If the Channel is Receive Only, a series of beeps will be heard and the Radio will NOT transmit.

**HIGH/LOW POWER SELECTION**

To adjust the power level of the Radio press the push button switch located on the top panel. When the switch is in the UP position, the radio is in the high power mode.

**TIME OUT TIMER**

A transmit Time Out Timer is built into the Unit. The Timer can be programmed by a Dealer to automatically shut down the transmitter after a pre-programmed amount of time even if the PTT switch is held in continuously. If the Time Out Timer is disabled the length of any transmission is determined by how long the PTT switch is held in.

If the Time Out Timer is enabled, a series of beeps will be heard and the TX LED will go out when the PTT switch is held in after the Timer has timed out. To resume the transmitting, momentarily release the PTT switch and then press again.

**BEEP**

When the Beep feature is disabled, a beep will not be heard when the Channel Selector is turned. However, beeps will still be heard when the FUNC button is pressed, or when the PTT is pressed and the channel is a Receive Only channel. In this case, a series of error beeps will be heard until the PTT button is released.

## BATTERY INFORMATION

### GENERAL INFORMATION

The Wall Charger will fully charge the battery in approximately 20 hours. The RSC21-7 Drop-In Rapid Charger will fully charge the battery in approximately 1.5 hours. These times are dependent upon the Unit being turned off or the battery is not installed.

**DO NOT use any other charger or damage to the Battery may occur.**

**FOR LONGEST BATTERY LIFE AND BEST PERFORMANCE**

1. Charge the Battery to full capacity: Approximately 20 hours with the Wall Charger or 1.5 hours for the optional RSC27/RSC1 Drop-In Rapid Chargers.

2. Use the Battery as soon and as much of its capacity as possible and practical. A Battery that is charged and discharged completely will maintain the longest operating time capacity. Typically 3 to 5 charge-discharge cycles are required to bring a new Battery up to its rated capacity.

3. A Battery that has been stored for over a month should be recharged before being put into service, due to chemical self-discharge. Do NOT charge a cold battery.

**CAUTION: Do Not short or incinerate the Battery.**

IMPORTANT: Please recycle or properly dispose of any non-usable or defective battery.

## MAINTENANCE

Have the Transceiver checked periodically by a qualified electronics technician.

### TROUBLESHOOTING

Perform the simple checks indicated below prior to returning the Unit for service.

| TROUBLE | CHECK |
|---|---|
| No Reception | Check Antenna Connection |
| No Sound | Check Volume Control Setting |
| No Sound, No Transmit | Dead Battery; Charge or Replace |
| Cannot Transmit on a selected channel | Is Channel Receive Only?<br>Is BCL enabled and BUSY LED is ON?<br>If it is, you will hear a series of beeps While PTT is depressed. |

## SPECIFICATIONS

(Subject to change without notice)

| | |
|---|---|
| GENERAL | |
| Number of Channels | 1-8 |
| Frequency Range | |
| SCV08 | 136-174 MHz (VHF) |
| SCU08 | 450-480 MHz (UHF) |
| Operation Bandwidth | 15 MHz (VHF); 20 MHz (UHF) |
| Channel Spacing | 30 kHz (VHF); 25 kHz (UHF)<br>12.5 kHz (VHF, UHF; optional) |
| Channel Increments | 2.5 kHz (VHF)<br>5 kHz/6.25 kHz (UHF) |
| Size With Battery | 2.45" x 1.38" x 5.25" |
| Metric (cm) | 6.22 x 3.50 x 14.6 |
| Weight With Battery and Antenna | 13.7 oz (0.39 kg) |
| Power Requirements | |
| Battery Voltage | 7.2V, Nominal |
| Current Drain | |
| Squelched (w/Power Save) | 20 mA, Typical |
| Squelched (w/out Power Save) | 38 mA, Max. (VHF)<br>48 mA, Max. (UHF) |
| Rated Audio | 150 mA, Max. |
| Transmit – 1 Watt VHF | 650 mA |
| 1 Watt UHF | 750 mA |
| Transmit – 5 Watts | 1350 mA |
| 4 Watts | 1450 mA |
| Antenna Impedance | 50 ohms |
| Speaker Impedance | 8 ohms |
| Frequency Stability | $\pm$ 5 PPM, Max VHF<br>$\pm$ 2.5PPM, Max UHF |
| Operating Temperature | -30° C to +60° C<br>(-22° F to +140° C) |

| | |
|---|---|
| RECEIVER | |
| Sensitivity (12 dB SINAD) | 0.25 uV Max |
| Threshold Squelch | 0.20 uV Max |
| Selectivity (Adjacent Channel) | -75 dB Min (VHF)<br>-70 dB Min (UHF) |
| Spurious Rejection | -67 dB Min |

## SPECIFICATIONS (CONTINUED)

| | |
|---|---|
| Intermodulation | -70 dB Min (VHF)<br>-67 dB Min (UHF) |
| Hum and Noise Ratio | -40 dB Min |
| Rated Audio Output | 500 mW Min |
| Audio Distortion @ 0.25 W | 10% T.H.D. Max |
| RF Output Power | |
| VHF | 5W/1W, ±1dB |
| UHF | 4W/1W, ±1dB |
| Spurious/Harmonic Emissions | -70dBc Min (VHF)<br>-63dBc Min (UHF) |
| Modulation | ±5kHz |
| FM Hum and Noise | -40 dB Min. |
| Audio Distortion | 5% Max |

For service, in or out of Warranty, send Unit to

SmartComm USA, Inc.
471 Ballard Drive
Melbourne, FL 32935

For information, contact:
Phone: 321-751-9047
Fax: 321-751-9074

**TWO YEAR LIMITED WARRANTY.**

Smart CommUSA Inc. warrant to the original purchaser that should SmartComm's products, within the periods specified below, prove to be defective by reason of improper workmanship and/or material, SmartComm will, at its option, repair or replace any defective product, or refund the purchase price of the product, for a period of two (2) years from the date of purchase as shown on the original purchaser's sales receipt; provided, however, that rechargeable batteries and coiled cords will be warranted for one year from the date of purchase. For the full 2 years of the warranty period labor to perform warranty service will be provided without charge. Thereafter the purchaser must pay for labor at the prevailing rates of the Authorized Warranty Repair Center or SmartComm.

1. To obtain warranty service, bring the following to the dealer from whom you purchased the product: the defective product and proof of purchase. Costs of transportation, removal, reinstallation or similar costs must be paid by the purchaser.

2. This warranty does not cover defects caused by: Physical abuse or misuse of the product, Neglect or accident, Improper use or installation of the product, Repair or alteration by unauthorized personnel

3. ANY EXPRESS WARRANTY NOT PROVIDED HEREIN, AND ANY REMEDY FOR BREACH OF CONTRACT WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION OR OPERATION OF LAW, IS HEREBY EXCLUDED AND DISCLAIMED.

4. ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR ANY PARTICULAR PURPOSE, ARE HEREBY EXCLUDED AND DISCLAIMED.

5. UNDER NO CIRCUMSTANCES SHALL SMARTCOMM BE LIABLE TO PURCHASER OR ANY OTHER PERSON FOR ANY OTHER BREACH OF WARRANTY, BREACH OF CONTRACT, OR OTHERWISE, OR FOR ANY INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES.

6. Equipment and accessory items not manufactured by SmartComm are excluded from this warranty.

7. This warranty applies only to SmartComm products sold by dealers within the United States and used exclusively in the United States.

8. SmartComm reserves the right to modify or change the equipment in whole or in part at any time prior to delivery

9. This written warranty constitutes the final, complete and exclusive statement of warranty terms and no person is authorized to make any other warranties or representations on behalf of SmartComm.