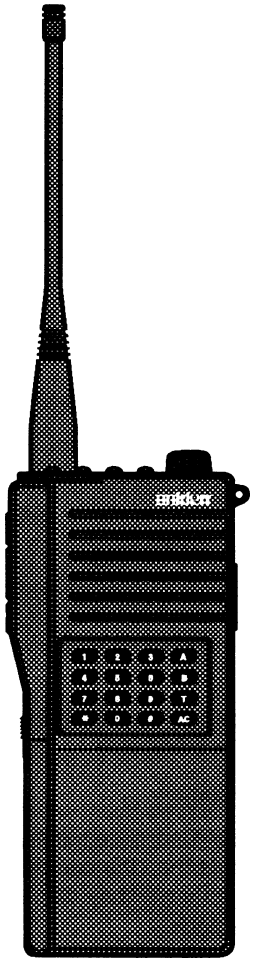
uniden®

SPH 516D
SPU 416K



RELM

WIRELESS CORPORATION

7100 Technology Drive
West Melbourne, FL 32904

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CC OG 22
ULUD01066BZ

uniden®

Operating Guide

RELM WIRELESS CORP.
7100 Technology Drive
West Melbourne, FL 32904
CC OG 22

Safety Information

Through the provisions of the Occupational Safety and Health Act (OSHA) of 1970, the United States Department of Labor has established an electromagnetic safety standard which applies to the use of two-way radio equipment. The proper use of this transceiver will result in exposure below the OSHA limit.

The following precautions shall be observed:

WARNING

Do not operate the transmitter of any radio equipment with the antenna touching, or close to the eyes, face, or exposed body parts.

Do not operate the transmitter of any radio equipment unless all the Radio Frequency (RF) connectors are secure and any open connectors are properly terminated.

Do not operate the transmitter of any radio equipment near electrical blasting caps or in an explosive atmosphere.

Do not let children operate any transmitter-equipped radio equipment.

Have your radio equipment installed and serviced by a qualified technician.

Nickel-Cadmium Battery Warning

This equipment contains a Nickel-Cadmium battery.

Cadmium is a chemical known to the State of California to cause cancer.

The Nickel-Cadmium battery contained in this equipment may explode if disposed of in a fire.

Do not short circuit the battery.

Do not charge the Nickel-Cadmium battery used in this equipment in any charger other than the one designed to charge this battery. Using another charger may damage the battery, or cause the battery to explode.

Nickel-Cadmium Battery Disposal

Nickel-Cadmium batteries must be disposed of properly. Read the "Nickel-Cadmium Battery Disposal" package insert for important information.

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RELM Wireless Corporation
Commercial Communications Division
Two Year Limited Warranty

WARRANTOR: RELM Wireless Corporation ("RELM" or "Warrantor")

ELEMENTS OF WARRANTY: RELM Warrants, to the original purchaser, for a period of two (2) years, new commercial radio equipment of the Warrantor's manufacture (hereinafter referred to as the Product) to be tree from detects in material and workmanship with only the limitations or exclusions set out below.

EXCEPTIONS TO WARRANTY: The duration of the warranty shall be one (1) year for Uniden repeaters, battery chargers, rechargeable batteries and all other Uniden-made accessories. Rechargeable batteries will be replaced during She applicable warranty period if:

(a) the battery capacity falls below 80% of rated capacity

(b) the battery develops leakage

This warranty shall not cover rechargeable batteries if:

(a) any of the seals on the battery enclosure or cells are broken or show evidence of tampering.

(b) the damage or defect is caused by charging or using the battery in equipment or service other than the Uniden product for which it is specified.

Equipment and accessory items not manufactured by Uniden carry the standard warranty, many, of the manufacturer thereof.

WARRANTY DURATION: The Warranty shall commence upon the installation of the equipment or two (2) months from the date of shipment from the factory, whichever occurs first. This Warranty shall terminate and be of no further effect two (2) years from the commencement of the warranty period except as noted above or at the time the Product is (a) damaged or not maintained as reasonable and necessary; (b) modified; (c) improperly installed; (d) missing the original serial number or it is made illegible; (e) is repaired by someone other than Warrantor or Authorized Warranty Repair station for a defect or malfunction covered by this Warranty; (f) disassembled or repaired in such a manner as to adversely affect performance or prevent adequate inspection and testing to verity any warranty claim; or (g) used in a manner or purpose for which the Product was not intended or in an environmental condition for which the Product was not intended

STATEMENT OF REMEDY: In the event that the Product does not conform to this warranty at any time while this warranty is in effect, Warrantor will repair or recondition the detect and return it to you without charge for parts, service or any other cost incurred by the Warrantor or its representatives in connection with the performance of this warranty. THE WARRANTY SET FOR THE ABOVE IS THE SOLE AND EXCLUSIVE WARRANTY PERTAINING TO THE PRODUCT AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES OF ANY NATURE WHATSOEVER, WHETHER EXPRESS, IMPLIED OR ARISING BY OPERATION OF LAW, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY DOES NOT COVER OR PROVIDE FOR THE REIMBURSEMENT OR PAYMENT OF INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some States do not allow this exclusion or limitation on incidental or consequential damages, so the above limitation or exclusion may not apply to you.

WARRANTY REGISTRATION CARD: In order to facilitate service under this warranty, the customer should return the Warranty Registration Card to the Warrantor. However, return of the Warranty Registration Card is not a precondition of this Warranty, and this Warranty will be observed by the Warrantor whether or not the Warranty Registration Card is returned, provided that other satisfactory evidence of the date of the original installation or purchase is provided to Warrantor.

LEGAL REMEDIES: This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This warranty is void outside the United States of America.

WARRANTY REPAIR: To obtain warranty repair, pack the Product carefully and include a note describing the specific defect that has caused you to return it. For your protection, it is advisable to insure the parcel against loss or damage. The Product (with evidence of original installation or purchase) should be shipped or delivered (by UPS or insured parcel post), freight prepaid, to Warrantor at:

RELM WIRELESS CORPORATION
REPAIR DEPARTMENT
7100 Technology Drive
West Melbourne, FL 32904
(800) 422-6281

or any Authorized Warranty Repair Station. The Product will be returned freight prepaid.

Using Memory Dial

1. Press the * key, then either the A or B key.
2. Press the PTT button and transmit.

Battery Save

In Battery Save or "sleep" mode, the radio receives only when it detects an RF carrier. This helps reduce battery power consumption.

Function Tone

Every time you press any key other than the PTT or monitor, you will hear an alert tone.

Options

- DTMF Keypad Rechargeable Battery packs:
  – Standard Pack (APX 700)
  – Heavy Duty Pack (APX 1070)
- Battery Chargers:
  – Desktop Rapid Charger (APX101)
  – Trickle Charger (APX121)

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Introduction

Congratulations

You now own the best value in portable radios, a Uniden professional communications radio that gives you consistently outstanding performance in virtually all conditions and situations.

Description

The **SPU 416K** and **SPH 516D** are 16-channel, programmable, microprocessor-control led, frequency-synthesized portable transceivers. They are lightweight, rugged and easily fit your hand.

The **SPU 416K** operates in the 450 to 470 MHz range and has a maximum RF power output rating of 4 watts.

The **SPH 516D** operates in the 150 to 174 MHz range and has a maximum RF power output rating of 5 watts.

Service

If your radio does not work properly, take it to a Uniden dealer for servicing. These radios contain no user serviceable parts. Unauthorized adjustments will void the warranty and may cause illegal radio operation. Make sure that a qualified technician services your radio equipment. When servicing these radios, use only factory authorized replacement parts.

Features

- Channel/Function LCD
- Channel Monitor Switch
- Battery Low Indicator
- DTMF Keypad (Optional)
- User-Programmable Channel Scan List
- TX/Busy LED

UNIPRO Selectable (Dealer Programmable):

- Channel Scan
- Scan Pause
- Scan Dropout Delay
- Transmitter Time Out Timer
- Talk Around Channel
- Battery Save
- Busy Channel Lockout
- Function Beep
- CTCSS/DCS Receive/Transmit Codes

Special Features

DTMF Encode Mode

You can access systems connected via the telephone network by transmitting DTMF codes. DTMF codes are transmitted by three methods: manual dial, auto dial, or memory dial.

Manual Dial

Transmit the desired access code or telephone number by dialing with the keypad.

To do this, hold down the **PTT** button and press the appropriate characters on the DTMF keys.

Auto Dial Automatically transmit the desired DTMF access code that was stored just before transmitting. 1. Press the DTMF keys to enter the desired DTMF code and press the * key. 2. Press the PTT button and transmit.

Memory Dial

User-programmable auto dial memory is available for two sets of numbers. These DTMF code numbers can be stored in memory using the **A** or **B** keys on the keypad (up to 16 digits). Memorized DTMF codes are transmitted automatically.

DTMF Access Code Storage:

1. Hold down the monitor key and press the tone (T) key on the DTMF keypad.

   The **LCD** should read **d1**.

2. Press the DTMF keys for the desired DTMF code digits.

   Note: *If you make a mistake when entering the DTMF access code,*

   a. hold down the monitor key,
   b. press the * key,
   c. enter the DTMF code again.

3. Hold down the monitor key and press the **A** or **B** key that will store the DTMF code. If you want to store another DTMF code, repeat steps 1 through 3.

For short distance communication, the Talk Around Channel (TAC) provides direct transmission from your unit to another, bypassing the repeater.

In the TAC, the transmit frequency of your portable is the same as the receive frequency. This channel allows direct communication from your portable unit to other units or to your dispatcher.

Unpacking

The following should be included with your two-way radio:

- Transceiver Unit
- Antenna
- Belt Clip
- Operating Guide
- One of these Nickel-Cadmium Rechargeable Battery Pack types:

  – Standard Pack (APX 700)

  – Heavy Duty Pack (APX 1070)

  Note: *Either Battery Pack may be purchased separately.*

- One of the following Battery Pack chargers:

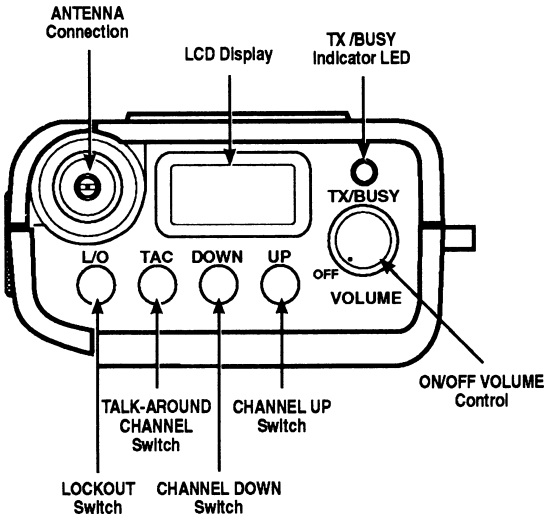
  – Trickle Charger (APX121)

  – Rapid Charger (APX101)

  Note: *Either battery charger may be purchased separately.*

If any of these items are missing from the box, contact your representative for help.

Controls and Indicators



Top Indicators and Display

Antenna Connector - Connect antenna to this **TNC** port

Lockout Switch - Locks out a selected channel from channel scan.

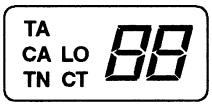
Talk Around Channel (TAC) Switch - Toggles Talk Around Channel function between on and off.

Channel Up/Down Switches - Use to select a channel.

On/Off Volume Control - Rotate clockwise to turn the radio on and increase the volume. Rotate counterclockwise to turn the radio off or decrease the volume.

TX/Busy Indicator - The red LED lights when you press the **PTT** switch (to transmit). It blinks when the battery is low and needs recharging. The green LED lights when the received signal (on the current channel) is strong enough to break squelch.

LCD Display - The liquid crystal display (LCD) has several indicators that show the current operating mode. The two digits at the right show the current selected channel. The smaller, two-letter displays show which features are enabled.



- **TA** Talk Around Channel enabled
- **CA** call received
- **TN** DTMF feature selected
- **LO** low power TX selected
- **CT** CTCSS feature enabled

Drop Out Delay

While scanning, the radio stops at a busy channel and receives a transmission. When the received call is over, it resumes scanning.

TRANSMIT

1. The nominal transmit power output level is 5 watts for the **SPH 516D** and 4 watts for the **SPU 416K.**

   To switch to low power, press the **HI/LO** switch. **LO** appears on the **LCD** and the transmit power output level is changed to 1 watt.

   To switch back to high/default power, press the **HI/LO** switch again. The TX power returns to high, and the **LO** indicator disappears from the **LCD**.

2. Before you transmit, press the monitor switch and listen for activity on the selected channel.

3. When the channel is clear, press the **PTT** switch to transmit. The TX **LED** comes on when you transmit. Hold the radio with the microphone approximately two inches in front of your mouth with the antenna at approximately a 45-degree angle away from your head. Speak in a clear, normal, conversational voice.

4. When you are through speaking, release the **PTT** switch and listen for an answer.

Transmit Time Out Timer

Continuous transmission time is limited. When you transmit longer than the preset time, you hear a beep from the speaker, and the radio automatically returns to receive mode. When you release the **PTT** button, the **Time Out Timer** is reset.

Busy Channel Lockout

You cannot transmit while you are receiving a signal.

Talk Around Channel

Normally, transmissions between your transceiver and other units are sent through radio relay facilities (repeaters) that retransmit your messages from an antenna system located atop a high building, a hill or a mountain. This allows dependable communications over much longer distances.

Operation

RECEIVE

1. Turn the radio on. Rotate the **ON/OFF Volume** control clockwise until you hear a click. A channel number should appear in the LCD display.
2. Press the **UP** or **DOWN** switch to select the desired channel.
3. Press and hold the monitor switch.
4. Rotate the **ON/OFF Volume** control to adjust the speaker volume to a comfortable level.
5. Release the monitor switch.

Note: *While the monitor switch is on, your radio may detect (on the selected channel) transmissions from stations outside your own system, as well as transmissions within your system.*

Channel Scan

When you press both the **UP** and **DOWN** keys for more than 1.5 seconds, the scan feature starts.

The radio stops on any channel that receives a call and you hear the caller. To move to the next channel, press the **UP** key.

To disable the scanner, press the **DOWN** key.

Scan Pause

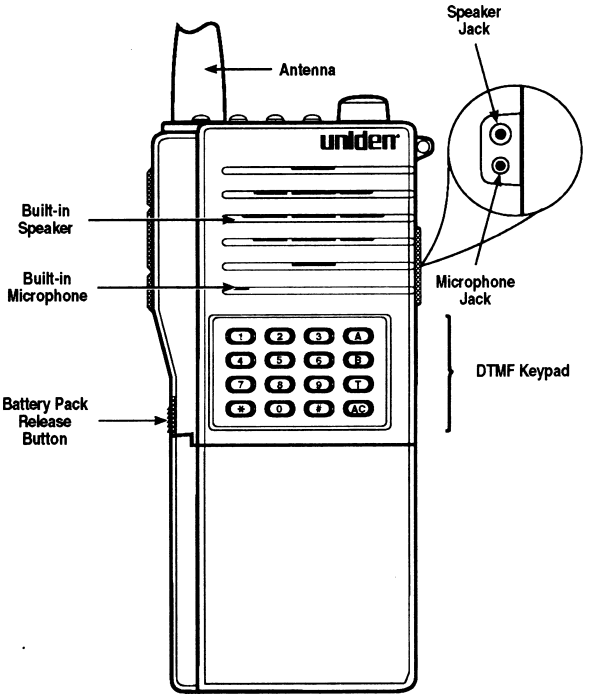
When the radio stops on a busy channel during scanning, you can press the **PTT** switch to transmit. This pauses the scan.

After you interrupt Scan by pressing the **PTT**, the radio resumes scanning.

Create a Channel Scan List with Channel Feature Lock Out

Deleting channels (from the channel scan list) increases the scanning speed. Using the UP/DOWN switches, manually select the desired channel and press the Lock Out (**L/O**) button. The locked-out channel blinks.

To remove the lock-out condition from a channel, manually select the channel and press **L/O** button again.



Front Controls

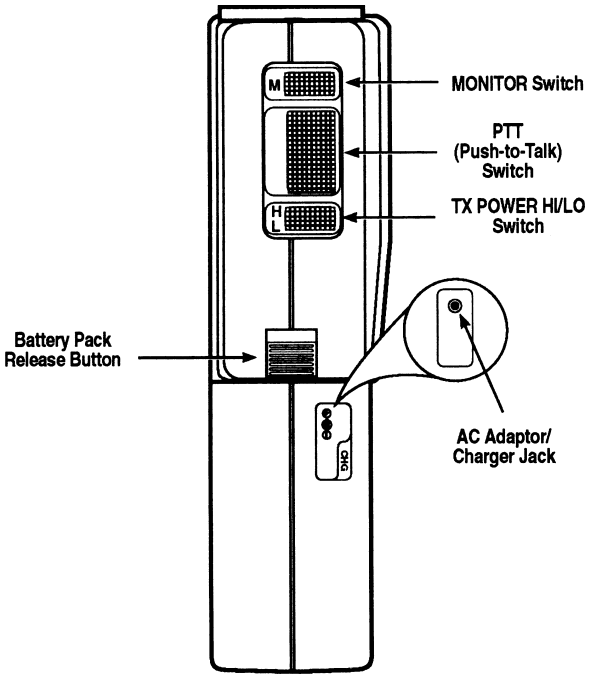
Built-in Speaker - Audio output.

Built-in Microphone - Speak into the microphone when transmitting.

Speaker Jack - Connect optional external speaker here

Microphone Jack - Connect optional external microphone here.

DTMF Keypad (Optional) - Use when entering DTMF data, such as an access code or telephone number.



Side Controls and Connectors

Battery Pack Release Button - To remove the Battery Pack, push up on the release button and slide the Battery Pack away from radio.

Monitor Switch - Press to listen to all transmissions on the currently selected channel. Release the monitor switch to hear only those transmissions directed to you.

Push-to-Talk (PTT) Switch - Press and hold to talk. Release to listen for a reply.

TX Power HI/LO Switch - Press to set the transmit output power to high or low.

AC Adapter/Charger Jack - Connect AC Adapter/ Charger here.

Getting Started

Antenna

To attach the antenna to the **TNC** connector on top of your radio, press down and rotate the antenna base clockwise until it seats firmly into place.

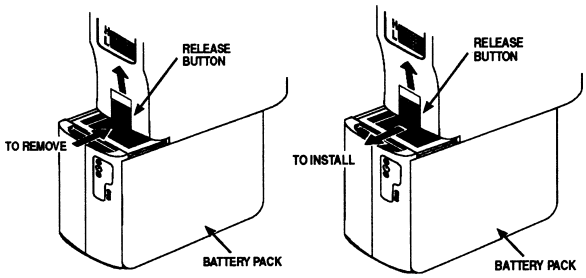
Battery Information

The SPU 416K and SPH 516D comes with either a standard or heavy duty rechargeable Battery Pack.

Installation

Before installing or removing the rechargeable Battery Pack, be sure that the power (**ON/OFF Volume** control) is turned off.

To remove the Battery Pack, push up on the release button and slide the Battery Pack away from the radio. To replace, align the Battery Pack rails with the transceiver and slide toward the transceiver unit until the Battery Pack locks in place.



Recharging the Nickel-Cadmium Battery Pack

Note: *Before charging, be sure that the power* **(ON/OFF Volume** *control) is turned off.*

Before you first use the Nickel-Cadmium Battery Pack (either standard or heavy duty), charge it fully. Insert the discharged Battery Pack in the rapid charger, or connect the trickle charger to the side of the unit.

In the trickle charger, the standard pack charges fully in 8 hours, and the heavy duty pack in 12 hours. In the rapid charger, the standard pack charges fully in 1.5 hours, and the heavy duty pack charges fully in 2 hours.