



# RX-SPECIAL TELEMETRY SYSTEM

Customized for any  
4MHz Range between 148.000 MHz and 174.000MHz

## Operating Manual

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## INTRODUCTION

Congratulations on purchasing the new RX-SPECIAL Telemetry System. This comprehensive system is an exceptional value. The RX-SPECIAL synthesized receiver covers any continuous 4MHz frequency spread between 148.000 MHz and 174.000 MHz. The system includes a folding Yagi antenna which mounts directly to the receiver. The receiver is nicely balanced on the antenna for comfortable, one handed operation.

The RX-SPECIAL is extremely sensitive to hear the weakest telemetry signals, it also employs very effective filters to eliminate unwanted interference sources. The synthesized design provides excellent temperature stability with no drift in frequency settings. A four step attenuator allows full receiver sensitivity for longest range or reduced sensitivity for extremely close-in tracking to a few inches. It employs a large, full range, speaker for rich sounding loud audio. A very sensitive signal strength meter also doubles to let you know when the battery needs replacing. A rugged, light weight, aluminum case is standard as well as a 3.5 mm mono headphone jack. A standard circ., 5.5mm x 2.1mm, center positive, power jack allows the RX-SPECIAL to be powered from an external 9-14VDC source.

## SPECIFICATIONS

Frequency: Customized for any continuous 4 MHz range between 148.000 MHz and 174.000 MHz

Sensitivity: -150dBm

Channel steps: 1kHz with  $\pm 500$ Hz fine tuning

Receiver Mode: CW

Antenna Impedance: 50 ohms

Antenna connector: BNC female

RF attenuator: -20, -40, -70dB switchable

Battery: 9 volt replaceable (rechargeable Lithium-ion or non-rechargeable Alkaline)

Size: 6.2" x 3.5" x 1.4", less projections

Overall size with antenna folded: 4" x 32"

Overall size with antenna extended: 30" x 40"

Weight: 16oz without antenna, 40oz with antenna

Made in the USA

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## THE RX-SPECIAL TELEMETRY SYSTEM PRICED AT \$895.00

- (1) RX-SPECIAL Telemetry Receiver
- (1) Three Element Folding Yagi Antenna with Coax. Antenna is matched to your custom selected frequency range.
- (1) Water Resistant Nylon Carrying Case with Shoulder Strap
- (4) Rechargeable 9v Batteries
- (1) USB Battery Charger and (1) DC Power Supply for use with battery charger
- (1) Wall Power Supply for use with battery charger
- (1) DC Power Cord for "no battery" operation
- (2) Antenna Handles





## RECEIVER CONTROLS

### Antenna Jack

BNC female antenna jack accommodates standard coax lead for attaching antenna.

### Speaker

Full audio range with great sound. Keep liquids and debris away from speaker grill.

### Frequency Select Switches

**\*Your Custom Frequency Range is Shown on the Front Cover of this Manual**

The single digit pushwheel switch shows the MHz range selected. The first digit of the 3 position kHz switch selects the 100kHz increment within the MHz range selected. The second switch selects the 10kHz increment within the 100kHz range selected. The third switch selects the 1kHz increment within the 10kHz range selected. **The receiver will be muted if the number in the MHz position is not in your custom frequency range\*.** For example, the FREQUENCY SELECT SWITCHES are set to the frequency of 158.125MHz in the photo shown to the right. The first two digits are not shown on the MHz selection switch.

	MHz	100 kHz	10 kHz	1 kHz
Transmitter Frequency Example	1	5	8	. 1 2 5

The TUNE CONTROL is set to the tone pitch desired. It is important to try out the transmitters you are going to use in the field before needing them. It is also helpful to have a list of FREQUENCY SELECT SWITCH and TUNE CONTROL settings that match each of your transmitters. With the exception of the newest programmable transmitters, the frequency marked on the transmitter case is only a close approximation of its real frequency. The receiver however is accurate to within 100Hz, so make sure you have selected and written down the real transmitter frequency as shown on the FREQUENCY SELECT SWITCHES before deployment.

### Tune Control

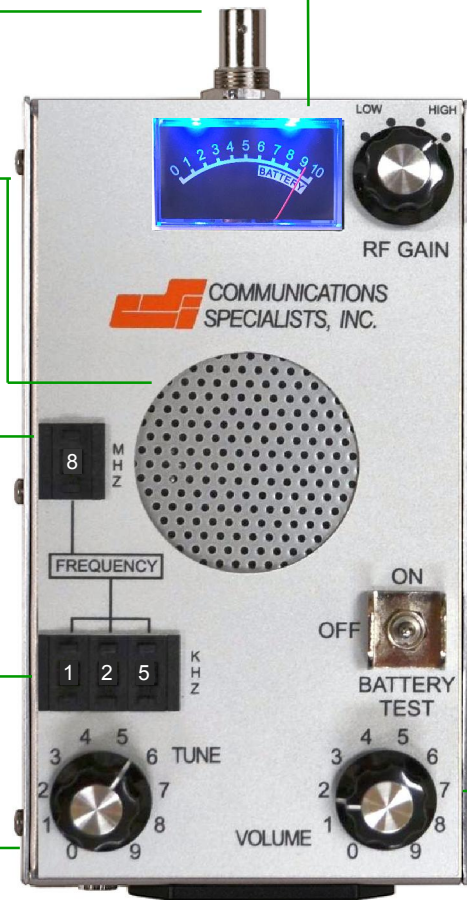
The TUNE CONTROL is used to fine tune the receiver between the 1kHz increments shown on the FREQUENCY SELECT SWITCHES. Each number between 0 and 9 represent approximately 100Hz. Adjust the TUNE CONTROL for pleasant sounding audio.

### DC Power Jack

The DC power jack is used to power the receiver with or without a battery in the BATTERY COMPARTMENT. Use the 12vdc power cable to connect to the cigarette lighter socket in the vehicle. If any type of battery is installed in the battery compartment, it is automatically bypassed and no current is drawn from it when this jack is used.

### 3.5 mm Headphone Jack

For Mono headphones. If a stereo headphone is plugged in, audio may only be heard in one ear. When a plug is inserted into the jack, the internal speaker is disconnected.



### Lighted Meter

Measures the relative strength (loudness) of the incoming beeping transmitter signal. Use the RF GAIN SWITCH first and VOLUME CONTROL second to set the meter near the center of the scale.

### RF Gain Switch

4 position switch used to attenuate the signal from the antenna. Always keep it in the lowest possible setting to avoid overloading the receiver. If the receiver is overloaded, differences in signal level can't be heard and it will not be possible to DF the transmitter.

### Power and Battery Test

Turns the receiver ON and OFF. The BATTERY TEST shows the condition of the battery under load.

### Volume

Use the volume control to set the audio to a comfortable level after the RF GAIN SWITCH is in the lowest position possible that still allows hearing the signal. If the transmitter is not visible (under leaf litter or buried) and still too strong to DF, remove the BNC plug from the antenna jack and slide the receiver off the antenna. Use the receiver alone to sniff out the transmitter.



### 9v Battery Compartment

Lift and pull to open. Do not remove screws. Note the proper polarity when replacing battery. If you force the battery in with reversed polarity, the receiver will not work but will not be damaged. Simply remove the battery drawer and flip the battery over.

## BATTERIES AND CHARGING

The RX-SPECIAL can be powered by either internal replaceable 9v batteries or an external source of 12-14VDC.

### Internal 9v batteries:

Use the supplied rechargeable Lithium-ion batteries for the longest battery life. Each battery will operate the RX-SPECIAL for approximately 6 hours before needing re-charging. The four batteries supplied with each system should operate the receiver for 24 continuous hours. Keep spare charged batteries in the supplied plastic case to keep them from shorting out to each other. Also remove the clear plastic covering on the top of each battery when first used. Because of this, there is no battery installed in the receiver when shipped.

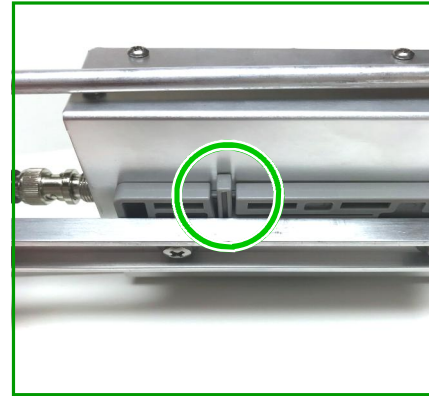
Plug the four batteries into the USB charger and charge before using. Charging will take about 5 hours. This should also be done if the batteries have not been used for more than two months as they self-discharge. They should last for several hundred charges. If charging from 110-220vac, use the supplied wall charger with appropriate plug attached. For vehicle charging, use the supplied 12VDC cigarette lighter plug with USB cable attached. You can also use the USB cable to plug directly into any unused USB port in your PC.

For longest battery life, be sure to turn off the receiver between uses. You can also power the receiver with standard alkaline 9v batteries but the operating time will only be 3 hours. Never use cheap "heavy duty" batteries.

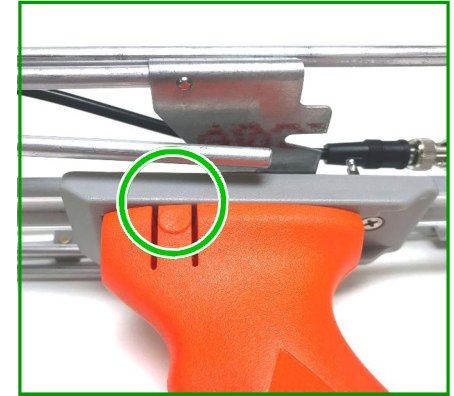
### External 12-14VDC power:

For use in a vehicle, use the supplied DC power cord. When plugged into the DC Power Jack, the receiver will operate with or without an internal battery. It will not charge an internal battery. If an internal battery is installed when the DC power cord is supplying 12VDC from the vehicle, the internal battery will be disconnected and no power will be drawn from it.

## RECEIVER AND HANDLE ATTACHMENTS



To detach the receiver from the antenna, push the release latch on the antenna mount and slide the receiver from the antenna. When re-attaching, slide the receiver forward until a small click is felt.



The handle slides into the bracket beneath the antenna and will lock into place with a small click. To remove handle, depress the release button and slide the grip free.

## ACCESSORIES

**RA-9** Omni directional magnet mount auto rooftop antenna with coax  
**\$69.95**

**RA-8** Mono headphone adapter, 1/4" female to 3.5mm male  
**\$9.95**

**ATT-1** BNC female to BNC male 30dB attenuator  
**\$19.95**



## TROUBLESHOOTING

*The receiver sounds different than it used to:*

-Test battery and replace if the needle is below 7 on the meter.

*There is no audio coming from the speaker:*

-Make sure the MHz frequency switch is set to one of your customized frequencies.

*Unable to hear signal from transmitter:*

-Set the RF Gain Control to the high position, fully clockwise.

## FCC COMPLIANCE INFORMATION

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference including interference that may cause undesired operation. Changes or modifications not expressly approved by Communications Specialists, Inc. could void the user's authority to operate the equipment.

## ABOUT US

Communications Specialists, Inc. has been building quality electronic products that the land mobile radio and wildlife telemetry industries have come to rely on for over 50 years. At our Orange California factory, we utilize the latest in surface mount assembly technology to assure consistent quality throughout our entire product line.

## WARRANTY

The RX-SPECIAL Receiver is warranted to be free of defects in materials and workmanship for a period of two (2) years from the date of purchase. Please call or email us prior to returning the receiver for repair.

