

WIRELESS IFB/CUE SYSTEM

**UPX-10 TRANSMITTER
RCV-2 RECEIVER**

I N S T R U C T I O N M A N U A L

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Part Number 810179 Rev. D

Clear-Com Intercom Systems
4065 Hollis Street
Emeryville, CA 94608-3505
U.S.A

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QUICK START

- *Follow these instructions to quickly get the system up and running.*

1. Connect the external power supply (included) to the rear panel connector labeled “DC input.” Then plug the power supply into an AC outlet.
2. Connect a microphone cable between the Clear-Com line input connector on the rear panel and the output connector of a Clear-Com PIC-4000 IFB controller, or alternately, to a Clear-Com intercom system.
3. Set the “input level” switch to the “line” position.
4. Set the rear panel “audio compression” switch to “soft ALC.”
5. Turn on the front panel “power” switch.
6. With an audio input applied to the unit, adjust the front panel “input level adjust” control until the “audio level” bargraph meter indicates peaks in the 0 to +2 VU range.
7. Attach the earpiece or headset to the RCV-2 receiver.
8. Turn the receiver on by moving the slide switch to the F1 or F2 position.
A short flash of the red “Batt Low” LED indicates a good battery. A steady LED indicates a weak battery. If the LED does not turn on at all, replace the battery.
9. Verify operation by switching to F1 or F2 which selects one of two frequencies.
10. Adjust the volume to a comfortable level.

See Chapter 3 for detailed setup information and for instructions on how to optimize performance.

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OPERATION

DESCRIPTION

UPX-10 WIRELESS TRANSMITTER

The UPX-10 wireless transmitter permits IFB/talent cueing, PL/intercom listen-only monitoring and other audio monitoring applications for studio, field, and theatre/live performance environments. The system consists of the UPX-10 base station transmitter and one or more RCV-2 portable beltpack receivers.

The UPX-10 base station is a single-channel rack-mounted VHF/FM transmitter that sends a monaural audio signal to a compatible receiver such as the Clear-Com RCV-2 portable VHF receiver. The receiver must exactly match the transmitter frequency; refer to the identification labels on each piece of equipment.

The UPX-10 accepts either a Clear-Com intercom line or IFB audio signal from a Clear-Com IFB controller. It can optionally be set up to accept a mic- or line-level audio input through the same XLR connector mounted on the rear panel. The S0-239 RF output connector, sometimes called a UHF type, is also mounted on the rear panel. The transmitter is powered by means of an external, wall-mounted power supply provided with the UPX-10. It does not require or draw power from the Clear-Com system.

The audio signal can be adjusted in various ways prior to transmission in order to improve intelligibility in demanding acoustic environments. Two screwdriver-accessed controls for adjusting the low and high frequencies are located on the rear panel. In addition, the audio dynamic range can be limited by either a 2:1 logarithmic compressor, or by a wide-range Automatic Level Control (ALC) system, selected by means of a slide switch located on the rear panel. This switch also has a third position for no dynamic range modification. Noise reduction is achieved with a proprietary two-ended compander system that is always active. The compander is compatible with Clear-Com's RCV-2 portable VHF receiver.

Note: The UPX-10 is shipped from the Clear-Com factory with internal jumpers set to be compatible with Clear-Com wired intercom and IFB systems.

The UPX-10 can also accommodate a wide range of audio input levels. A two-position slide switch attenuator on the rear panel selects between mic (-40 to -10 dBu) and line (-10 to +20 dBu) levels. Fine audio level adjustment is made by means of a 30-dB range-variable attenuator conveniently located on the front panel. Also located on the front panel is an 8-segment LED VU meter to assist in adjusting input levels.

The RF transmitter portion of the UPX-10 is a replaceable printed circuit board assembly (PCB) that plugs into the main UPX-10 PCB. This crystal-controlled transmitter is factory tuned to a specific frequency, and can easily be replaced

- The system consists of the UPX-10 base station transmitter and one or more RCV-2 wireless beltpack receivers.

- The UPX-10 accepts either a Clear-Com intercom line or IFB audio signal from a Clear-Com IFB controller.

- The audio signal can be adjusted prior to transmission.

with another transmitter strip to allow operation on a different frequency. The transmitter is available set to any of over 1,600 different frequencies between 169 MHz and 216 MHz. This frequency must be pre-set at the factory. It is not field adjustable. Consult your dealer or the Clear-Com factory for details on frequency coordination and changes.

A 1/4-wave “whip” antenna is provided with the UPX-10. Other antennas, such as the Clear-Com Model 123U dipole antenna may be used to facilitate rack installation or to improve coverage where the standard whip antenna would otherwise be blocked or shielded by equipment cabinets or large objects.

- **NOTE:** The UPX-10 transmitter is not compatible with receivers from other manufacturers.

RCV-2 WIRELESS BELTPACK RECEIVER (MODELS RCV-2, RCV-2S, RCV-2D)

The Clear-Com RCV-2 wireless receiver is a miniature portable device normally worn on the body of the user. Small and lightweight, it operates from a single 9-volt battery for 8-10 hours of operation. It features a low-battery indicator and rechargeable battery operation. It is useful for a variety of one-way personal communications purposes.

- The RCV-2 wireless beltpack receiver may be ordered with either one or two frequencies installed.

The RCV-2 operates in the high-band VHF frequency range of 169 to 216 MHz. Systems employing the RCV-2 require licensing under FCC Part 90 or Part 74. It is compatible with the Clear-Com UPX-10 and WBS-6/600 transmitters.

Note: Any change or modification made to this product without the express written authorization and approval from Clear-Com could void the user's authority to operate this equipment.

The RCV-2 may be ordered with either one or two frequencies installed, and is switchable between those frequencies for maximum flexibility.

OPERATION

- Clear-Com provides a free frequency coordination service.

UPX-10 TRANSMITTER

The UPX-10 transmitter is intended to be used only with the Clear-Com RCV-2 wireless beltpack receiver (Models RCV-2, RCV-2S, and RCV-2D). The UPX-10 transmitter is not compatible with receivers from other manufacturers.

Frequency Selection

You must choose a transmit frequency for the UPX-10 that can coexist with other RF systems in the coverage area. This frequency must be specified at the time of purchase. The Clear-Com factory provides a frequency coordination service free of charge for this purpose.

Note: There are restrictions on the use of specific frequency ranges by certain types of users. If you do not understand these restrictions or are uncertain of their applicability, consult your Clear-Com dealer or the Clear-Com factory.

RCV-2 WIRELESS BELTPACK RECEIVER (MODELS RCV-2, RCV-2S, RCV-2D)

Receiver Parts

Headphones and Earpieces

The RCV-2 receiver is supplied with a generic earpiece for utility and testing purposes. Devices with impedances as low as 8 Ohms may be used if extremely high audio output is necessary, but battery life may be relatively short. Units with impedances in the 25 to 125 Ohm range are preferred, as they will usually give adequate output and longer battery life.

- *The RCV-2 receiver is supplied with a generic earpiece for utility and testing purposes.*

Battery

The RCV-2 requires a 9-volt battery. A good quality alkaline battery will provide the best service and the highest reliability.

Rechargeable 9-volt batteries (“ni cads”) may be used in the RCV-2. Battery life will be considerably shorter than for alkaline batteries, since the capacity of ni cad batteries is only about 20% that of alkalines.

The RCV-2 has external contacts to permit recharging an internal ni cad battery. An optional “drop-in” charger is available that allows the RCV-2 to be recharged without removing the battery, and without disconnecting or disassembling the headset.

- *If you have operational questions not answered by this manual, please consult your sales representative or the Clear-Com factory.*

Antenna

The RCV-2 receiver uses the headset or earpiece cable as the antenna. For best performance and range, the cable should be from 24 to 40 inches (0.6 to 1 meter) long. Coiling or twisting up the cable along its length may reduce the range of the system greatly. If the headset cable is longer than 40 inches (1 m) and you do not want to shorten it, roll up the excess cable about 36 inches (0.9 m) away from the plug which connects it to the RCV-2.

Beltclip

The RCV-2 receiver is equipped with a sturdy metal clip that can be used to attach it to a belt, pant pocket, strap, or the like. If you want to carry the unit in a pocket, the belt clip is easily removed. Simply unscrew the two Phillips-head screws, visible through the holes in the clip, and remove the clip. Be sure to save the belt clip and screws in case the clip is needed again in the future.

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INSTALLATION

INSTALLING THE UPX-10 TRANSMITTER

UNPACKING

Upon receiving your shipment, verify that the number of boxes shown as shipped on the freight receipt has been received. Also check immediately for damage to boxes which may have occurred during shipment. Notify both the dealer and the freight carrier if damages or losses are found, so that claims may be expedited. Unpack the unit or units carefully. We recommend saving the shipping cartons; they are useful for reshipping the equipment at a future date. Should service ever be required, remember that your authorized Clear-Com service center knows your equipment best and has the training and test equipment necessary to restore your equipment to its peak performance.

- *You can place the UPX-10 in a rack, or operate it as a freestanding unit.*

INSTALLING THE SYSTEM IN THE RACK

The UPX-10 can be mounted in a single rack space (1RU) of a standard 19-inch (48 cm) rack, or it can operate as a freestanding unit.

For stand-alone operation: Peel off the protective paper from the four rubber feet and attach to the bottom of the chassis at each corner.

For use in a rack: The detachable rack-mounted “ears” must first be installed on the UPX-10 as follows:

- *Installing the the detachable rack-mounted “ears” on the UPX-10 requires six steps.*

1. Loosen, but do not remove, the four screws on the two sides of the unit that hold the top cover onto the chassis.
2. Slide the top cover towards the rear of the unit as far as it will go—about 1/8 inch (3 mm).
3. Slide the smaller end of one rack-mounted ear into the grooves in each end of the front panel. Be sure that the ear’s vertical-locking groove is facing the unit’s rear.
4. Slide the top cover forward so that the front edges of the cover engage the locking grooves in the rack-mounted ears.
5. Tighten the cover onto the chassis (four screws).
6. Verify that the rack-mounted ears are secure and will not slip out.

The UPX-10 is now ready to be installed in a standard 19-inch (48 cm) rack using the screws and finish washers provided, or the equivalent metric hardware.

- *Attach the whip antenna or the optional dipole antenna to the connector on the rear panel.*

ATTACHING THE ANTENNA

Attach the whip antenna or the optional dipole antenna to the antenna connector on the rear panel. Make certain that the antenna connector is screwed on tightly and is not crossthreaded.

For optimum antenna efficiency, the whip wire may be cut to length. Do *not* try to cut the whip with wire cutters, as the whip is made from steel and will likely destroy the wire cutters. Use a bench grinder or equivalent to grind through the whip wire, being careful to use protective goggles and heavy gloves during the grinding operation. The following chart lists the ideal lengths for various operating frequencies. Lengths shown are for the exposed portion of the whip. The actual cut length will be 0.175 inch (0.45 cm) longer. The values also differ from the theoretical quarter wavelength due to the loading effects of the connector barrel and the ball on the end of the whip.

The following table shows the approximate length of whip versus frequency:

Frequency	Length in inches	Length in cm
170 MHz	17.8 inches	45.2 centimeters
180 MHz	17.1 inches	43.4 centimeters
190 MHz	16.3 inches	41.4 centimeters
200 MHz	15.6 inches	39.6 centimeters
210 MHz	15.0 inches	38.1 centimeters

For frequencies between chart entries, determine the length through interpolation.

CONNECTING THE SYSTEM

The audio signal is transmitted to the UPX-10 through the XLR connector located on the rear panel. The base station comes with the internal jumpers programmed for use with a Clear-Com intercom system. The pin assignments are consistent with that required by the intercom system. Alternatively, the base station can be programmed for a standard audio signal. This is a balanced, transformer-isolated input. The input is also DC isolated to 50 volts. For the standard mic- or line-level input modes, the pin assignments on this connector are as follows:

Pin 1: Shield

Pin 2: Audio +

Pin 3: Audio –

The programming jumpers are located inside the unit at the rear of the PCB, near the XLR connector. Programming is as follows:

Mode	JP 1	JP 2
Balanced mic line	BAL	BAL
Clear-Com	XLR 3	XLR 1

- For optimum antenna efficiency, the whip wire may be cut to length.

- Do not cut the whip antenna with wire cutters.

- The rear panel XLR connector transmits the audio signal to the UPX-10.

Finally, plug the correct external in-line or wall-type power supply for your operating voltage into the AC power outlet. Then, insert the DC power connector into the power jack located on the rear panel of the UPX-10. The user may wish to provide DC power from a source other than the provided wall-mounted power supply. In this case, connect +12 to +20 VDC (0.3 A minimum) to the power connector on the rear of the UPX-10. A compatible mating connector is the Switchcraft 760. When connecting external DC, carefully observe the following polarity rules:

Power supply negative (-) to the outer conductor.

Power supply positive (+) to the inner conductor.

CAUTION: No internal circuit protection fuse is provided with the UPX-10. The available current from the provided power supply is internally impedance-limited and thermal-limited and therefore does not require additional circuit protection. If the user provides DC power to the UPX-10 from a source other than the provided wall-mounted power supply, external fusing provided by the user is strongly advised. Consult the Clear-Com factory for more information.

The installation of the UPX-10 is now complete, and the unit is ready for adjustment and operation.

ADJUSTING THE SETTINGS

There are no user-serviceable adjustments located inside the UPX-10. In addition, normal setup and operation does not require internal access. Refer all service and internal adjustments to qualified service personnel. Specifically, the user may not make adjustments to the transmitter module. See Chapter 4, “Troubleshooting” for more information.

The adjustment procedure below is for the normal balanced mic-level or line-level input mode. The procedure for setting up the unit for use with intercom systems is essentially identical, except that the mic/line switch is not needed and is nonfunctional.

Initial Settings

Select the desired type of audio dynamic range limiting by means of the three-position slide switch found on the rear panel. The recommended setting for intercom or IFB use is “Soft ALC.” Other positions may be tried. The “Hard ALC” position provides about 35 dB range of automatic level control with fixed gain at low input levels to reduce system noise. The “Linear” position provides no dynamic range limiting at all. The “Soft ALC” position provides soft, 2:1 logarithmic gain compression. Set the “low” and “high” frequency compensation controls to the mid or “0” position.

- **Caution:** No internal circuit protection fuse is provided with the UPX-10.

- Normal setup and operation does not require internal access to the UPX-10.

- Refer all service and internal adjustments to qualified service personnel.

Audio Level Setting

The UPX-10 can accommodate program audio levels that are between -40 dBu and +20 dBu, a 60 dB range. If you know the approximate level of the input audio, set the mic/line switch as follows:

Program Audio Level	Mic/Line Switch Setting
-10 to +20 dBu	LINE
-40 to +10 dBu	MIC

- The UPX-10 can accommodate program audio levels between -40 dBu and +20 dBu.

If the VU meter bargraph cannot be adjusted up to 0 VU with the MIC/LINE switch in the MIC position, increase the audio level at the source.

Audio Frequency Response and Dynamic Range Adjustments

Listen to the program audio on a compatible VHF/FM receiver such as the Clear-Com model RCV-2. Adjust the “low” and “high” audio compensation controls for the desired audio frequency response. These controls provide ± 10 dB adjustments to the low and high frequencies respectively. Unlike stereo tone controls, these adjustments affect audio response well into the audio midrange. The controls should be adjusted to achieve maximum intelligibility for the particular listener group involved. Experiment with the dynamic range limiter settings and select the position that best meets your audio quality and intelligibility needs.

- Adjust the UPX-10 controls to achieve maximum intelligibility for the particular listener group involved.

Note: Whenever a different dynamic range setting is selected, it will be necessary to readjust the variable audio level control to achieve the 0 VU reading on the front panel bargraph. If the VU meter consistently reads higher than 0 VU, the audio signal may sound distorted; if the VU meter reads significantly lower than 0 VU, the system will not be operating at the best possible signal-to-noise ratio.

Adjustment of the UPX-10 is now complete.

- Install a 9-volt battery in the RCV-2 receiver.

INSTALLING THE CLEAR-COM RCV-2 WIRELESS BELTPACK RECEIVER

Note: The UPX-10 transmitter is intended for use only with the Clear-Com RCV-2 wireless beltpack receiver (Models RCV-2, RCV-2S, and RCV-2D).

To connect the Clear-Com RCV-2 receiver follow these steps:

I. INSTALL THE BATTERY

Install a 9-volt battery in the RCV-2. Slide the battery door on the side of the unit downwards towards the bottom of the unit with your thumb. The battery door has a grooved area to provide a good grip and the word “open” printed on it. The door is opposite the two metal contacts on the side of the unit.

The battery door will unlatch after being moved only a short distance. Once the lower end of the door is free, swing it upwards on the hinge to expose the battery compartment. The door is attached to the case and should not be removed.

- *The RCV-2 receiver is built with either one or two frequencies.*

Insert the battery into the battery compartment with the “plus” (+) terminal towards the bottom of the unit. The battery should slide in freely. Fold the battery door back down and press it against the side of the unit. If the door does not close easily it is likely that the battery is inserted backwards. Slide the door upward towards the top of the RCV-2 while holding the door closed. There should only be slight resistance when sliding the door.

2. CHECK THE POWER

Turn on the power to the RCV-2 by sliding the switch on the top of the unit towards the center of the unit to the “1” mark. If the battery is correctly inserted and in good condition, the small LED indicator in the center of the receiver top panel will flash briefly and then go out. If the LED does not flash, the battery is not good or is not properly inserted. If the LED indicator stays on, the battery is low and must be replaced.

- *The frequency of the RCV-2 receiver must match the frequency of the transmitter.*

3. SELECT THE CHANNEL

Select the desired channel (frequency) on the RCV-2. One or two frequencies may be provided with your unit. If the identification label on the lower back of the RCV-2 shows two different frequencies (i.e. 171.045 and 171.905) you have a two-channel unit (RCV-2D). Select the desired frequency by sliding the switch on the receiver top panel to “1” or “2” as appropriate. The frequency of the RCV-2 receiver must match the frequency of the transmitter. If you are not certain of the transmitter frequency, check the transmitter identification label to make certain that you have a precise match with the RCV-2 channel.

If only one frequency is listed, you have a single channel unit (RCV-2S). In this case, the switch on the RCV-2 may be in either the “1” or “2” position as both positions will be the same channel.

- *The identification label on the transmitter will show its frequency.*

4. ADJUST THE VOLUME

Adjust the volume control on the RCV-2 to minimum by turning the volume control towards the headset jack and away from the switch until the stop is reached. Do not attempt to force the control past the stop. Plug a headset or earpiece into the jack on top of the RCV-2 and adjust the headset or earpiece for a comfortable fit.

5. VERIFY OPERATION

Make certain that the companion transmitter is turned on and has audio input at the approximate normal level. Slowly turn the RCV-2 volume control clockwise towards the switch on the receiver top panel. If audio is not heard within the first few degrees of rotation of the volume control, it is likely that something is wrong.

Do not continue to advance volume control. Check to see if the transmitter is on and has audio input. Also check to make certain that the RCV-2 has a good

battery installed and is set to the correct channel. Do not adjust the control to maximum until audio is present and you are certain that you want the full output of the receiver.

- **Caution:** *Extremely high sound levels are possible, especially when used with efficient headsets and earpieces.*

Caution: Extremely high sound levels are possible, especially when used with efficient headsets and earpieces. Long-term exposure to high sound pressure levels can cause permanent effects, including hearing loss.

The use of low impedance (8 to 20 Ohms) and high efficiency headsets and earpieces with the RCV-2 should be limited to those with existing hearing impairments. As a safety precaution, only higher impedance headsets and earpieces (25-400 Ohms) should be used. In both cases, great caution should be employed in using the maximum volume control setting on the PL-2.

The RCV-2 is now ready for use. Be certain to turn the switch on the top of the unit.

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MAINTENANCE

TROUBLESHOOTING

The majority of difficulties with Clear-Com wireless systems are not due to equipment failure. This equipment is fully tested before leaving the factory. In most instances, problems are due to equipment application. This chapter describes the most commonly encountered application problems. If you are having difficulties, please review this information and take any necessary corrective action before returning the equipment for repair.

- *The most commonly encountered problems involve the batteries used in the RCV-2 wireless receiver.*

BATTERY

The most common problems with the wireless system are those related to batteries used in the RCV-2 wireless receiver. The low battery light on the receiver will indicate when it is time to replace the battery. Clear-Com recommends that only new, fresh Duracell MN1604 or Eveready Energizer No. 522 alkaline batteries be used. Rechargeable cell units (ni cads) commonly sold are almost always 7.2 volts instead of 9 volts and provide only a fraction of an hour of operation. The only acceptable rechargeable battery known to Clear-Com is the Varta, which is a true 9-volt design. Even here, the usable life will be much less than for a Duracell (usually two to three hours).

- *It is strongly recommended that the battery in the receiver is checked prior to each use.*

Battery contacts in the receivers must be clean and unbroken. It is strongly recommended that the battery be checked prior to each use. It is also good practice to try replacing the battery with a fresh unit in the event of any sort of problem with the system, because a low battery may affect system operation in subtle ways. When you turn off the power to the UPX-10 transmitter, always turn off the power to the RCV-2 receiver as well, and remove the earpiece and headset.

INTERFERENCE

Clear-Com receivers have been specifically designed to reject interference. However, interfering signals may fall directly on the receiver frequency, making it impossible to avoid problems completely.

- *Always turn off the power to the RCV-2 when not in use.*

Defective fluorescent lighting fixtures can generate extremely high amounts of RF energy, which can cause interference. When such a situation exists, the fixture has become a wideband transmitter and little can be done to the wireless equipment to correct its problem that will not seriously degrade its performance.

A more serious problem is selection of operating frequencies, which are subject to interference due to intermodulation. Fortunately, a proper initial selection or a change of frequencies will almost always correct any such problem. Clear-Com offers a free computerized frequency-selection service to purchasers of its equipment. If the frequency of other wireless equipment in the area is known, interference-free frequencies can be chosen. However, if equipment is added later

- *If the frequency of other wireless equipment in the area is known, interference-free operating frequencies can be chosen.*

- *Whip and dipole antennas require at least 5 inches (12.7 cm) of space from metal surfaces.*

without frequency coordination, an interference problem will likely exist. Should this occur, contact the Clear-Com factory or your sales representative for assistance.

ANTENNAS

Proper mounting and placement of antenna(s) is vitally important in wireless systems. If overlooked, antennas could cause unnecessary problems. For best results, always provide a clear, unobstructed line-of-sight path between the transmitter and receiver(s).

While the antenna may be concealed behind fabric, thin plastic, acoustic tile or thin plywood without significantly affecting performance, close proximity to metallic objects should be avoided. These include: furniture, lighting fixtures, scaffolding, electrical cables, metal structural members, aluminum window frames, and equipment cabinets. Whip and dipole antennas require at least 5 inches (12.7 cm) of space from metal surfaces.

Other types of antennas may require greater spacing. Follow those manufacturers' recommendations.

Generally, it is advisable to contact the Clear-Com factory, your sales representative, or distributor prior to returning equipment for repair. Often, the problem can be resolved by telephone, avoiding downtime for unnecessary returns. However, should repairs be necessary, Clear-Com will promptly correct the problem and return the unit.

5 SPECIFICATIONS

UPX-10 WIRELESS TRANSMITTER

Product Description

VHF audio transmitter

Frequency Control

Single frequency, crystal controlled

Frequency Stability

±0.005%

Operating Frequency Range

169-216 MHz

RF Power Output

50 mW, maximum

Modulation

Direct FM, 45KOF3E

Maximum Deviation

±7.5 kHz

Deviation Limiter Type

Frequency-compensated active rectifier, voltage-controlled amplifier

Deviation Limiter Range

20 dB after limiting starts

Audio Input

3-pin female XLR (mic/line mode)

Pin 1: ground

Pin 2: audio+

Pin 3: audio -

Intercom Mode

Pin 1: ground

Pin 2: +VDC

Pin 3: audio

Audio Input Level Select

Rear-panel mounted slide switch

Audio Input Level

Line: -10 to +20 dBu

Mic: -40 to -10 dBu

Audio Input Adjust Range

30 dB

Audio Frequency Compensation

Low: ± 10 dB; High: ± 10 dB

Front Panel Controls and Indicators

Power on/off switch

Power-on LED

Audio input level adjust

VU meter (8-segment LED)

Rear Panel Controls and Indicators

Audio input connector (3-pin XLR female)

Audio processing switch

Audio input level switch

Frequency compensation: high and low

DC power input

RF output (S0-239)

Power Required

12-24 VDC, 300 mA max, negative ground

Power Supply Provided

Wall-mount, 12 VDC, 500 mA, unregulated (120 VAC standard, 240 VAC optional)

Packaging

19 in. (48 cm) rack-mount

17 in. W x 1.72 in. H x 5.1 D, excluding detachable rack-mount ears

43 cm W x 4.4 cm H x 13 cm D, excluding detachable rack-mount ears

Weight

3.2 lbs. (1.5 kg) without power supply

RCV-2 RECEIVER

Frequency Range
169–216 MHz

Number of Frequencies
1 or 2, switch selectable

Frequency Stability
+0.005% or better

Deviation Acceptance
+7.5 kHz, maximum

Squelch
Internally adjustable, with hysteresis

Audio Processing
2:1 compander

Sensitivity
3 microvolts, minimum, for 50 dB SNR

Frequency Response
80–7200 Hz

Harmonic Distortion
1% typical, 1 kHz

Signal-to-Noise Ratio
78 dB, minimum

Audio Output
100 milliwatts, minimum, into 8 Ohms

Power
9-volt battery, accepts 9.2 to 6.3 VDC

Current Drain
40 milliamps, max, with 10 milliwatt audio output into 32 Ohms

Battery Charging
Provision for use with “drop-in” charge via external contacts

Controls
Power on/off
Frequency 1 or 2
Volume control

Indicator
“Low battery”

Audio Output Connector
Standard mono mini-jack

Antenna
Headset/earphone cable

Case Size
4 in. H x 2.5 in. W x 1.1 in. D
10.2 cm H x 6.4 cm W x 2.8 cm D

Weight
5 oz. (145 gm) with battery and belt clip

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CLEAR-COM LIMITED WARRANTY

This Clear-Com product is warrantied to be free from defects in materials and workmanship for a period of one year from the date of sale.

The Clear-Com warranty does not cover any defect, malfunction, or failure caused beyond the control of Clear-Com, including unreasonable or negligent operation, abuse, accident, failure to follow instructions in the manual, defective or improperly associated equipment, attempts at modification and repair not authorized by Clear-Com, and shipping damage. Products with their serial numbers removed or defaced are not covered by this warranty.

This warranty is the sole and exclusive express warranty given with respect to Clear-Com products. It is the responsibility of the user to determine before purchase that this product is suitable for the user's intended purpose.

Any and all implied warranties, including the implied warranty of merchantability are limited to the duration of this express limited warranty. Neither Clear-Com nor the dealer who sells Clear-Com products is liable for incidental or consequential damages of any kind.

For your own records fill in the information below:

Model No. _____ Serial No. _____
Date Purchased _____
Purchased from (dealer) _____
Address _____
City _____ State _____ ZIP _____

FACTORY SERVICE

Do not return any equipment to the factory without first obtaining a return authorization number.

All equipment returned for repair must be accompanied by documentation stating the return address, telephone number, date of purchase, and a description of the problem.

WARRANTY REPAIR

If in warranty, no charge will be made for the repairs. Equipment being returned for warranty repair must be sent prepaid and will be returned prepaid.

Send equipment to be repaired to:

Customer Service Department
Clear-Com Intercom Systems
4065 Hollis Street
Emeryville, CA 94608-3505
Telephone: (510) 496-6666
Fax: (510) 496-6610
Web site: www.clearcom.com

- *Return authorization numbers are required for all returns.*

- *Warranty and non-warranty repairs are available. Contact the factory.*

NON-WARRANTY REPAIR

Equipment that is not under warranty must be sent prepaid to Clear-Com or another authorized service facility. Contact the service department or check our Web site for a list of authorized service facilities. If requested, an estimate of repair costs will be issued prior to service. Once repair is approved and repair of equipment is completed, the equipment will be shipped freight collect from the factory or service facility.

Send equipment to be repaired to the following address:

**Customer Service Department
Clear-Com Intercom Systems
4065 Hollis Street
Emeryville, CA 94608-3505
Telephone: (510) 496-6666
Fax: (510) 496-6610
Web site: www.clearcom.com**

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