

CARVIN
audio



EM900

IN EAR MONITOR SYSTEM

INTRODUCTION

Thank you for purchasing the Carvin Audio EM900 In Ear Monitor System. The features and sound will give you a new level of monitoring quality that you have never experienced before. The following information found in this manual will help you get the most enjoyment and functionality from your new EM900.

IMPORTANT PRECAUTIONS

- » Make all connections before AC power is connected
- » Avoid exposure to high temperature or humidity
- » Do not handle the transmitter or AC cord in wet conditions
- » Keep away from heat and flame
- » Avoid prolonged listening at high levels. Refer to the OSHA table on page 7.

KEY FEATURES

- » UHF Operation with PLL technology provides a reliable signal connection
- » 960 selectable channels with Hi Frequency boost option
- » 4 channel groups with 16 presets allow for quick setup
- » Built in audio limiter to control peak signals
- » Receiver features XLR and 1/4-inch inputs
- » Lockout mode prevents accidental adjustments
- » Stereo or mono operation with volume and balance controls

EM900 / EM901 SPECIFICATIONS

- » Operating RF Frequency: 518-542MHz
- » Frequency Response : 30Hz-15kHz
- » S/N ratio : 80dB (A weighted)
- » Image frequency rejection : 80dB
- » Channel separation : 35dB
- » Input level switch : 0dB / -10dB
- » AC Mains input : 100V-240V (50-60Hz)
- » Receiver power : 2AA batteries
- » Battery life : 8 hours
- » Net Weight : Base 3.2lbs Receiver .45lbs
- » Dimensions : Base (EM900) 8.35"W x 9"D x 1.75"H
- » Dimensions : Receiver (EM901) 4.5"H x 2.75"W x 1"D
- » Fuse : 0.5A 250V 19.5mm x 5.2mm dia



EM902 EAR BUD SPECIFICATIONS

- » Frequency Response : 20Hz-20kHz
- » Type : Dynamic
- » Impedance : 16 ohms
- » Sensitivity @ 1kHz : 114dB/mW
- » Distortion : less than 0.3%
- » Cord length : 58" Inches



SYSTEM INCLUDES :

- » 1 EM900 Base Transmitter with antenna
- » 1 EM901 Body Pack Receiver
- » 1 Pair of EM902 High Definition Ear Buds



WARRANTY

This CARVIN AUDIO product is guaranteed in normal use to be free from electrical and mechanical defects for a period of ninety days from date of purchase. Retain proof of purchase. This warranty is in lieu of any and all other guarantees or warranties, expressed or implied. There shall be no recovery for any consequential or incidental damages.

EM900 Front Panel



- » 1. POWER SWITCH
- » 2. DISPLAY
- » 3. (+) BUTTON
- » 4. SET BUTTON
- » 5. (-) BUTTON
- » 6. VOLUME CONTROL
- » 7. MONITOR VOLUME
- » 8. STEREO MONITOR JACKS
- » 9. ANTENNA

EM900 Rear Panel

- » 10. AC MAINS SOCKET
- » 11. BALANCED LOOP OUTPUT JACKS
- » 12. INPUT - XLR & 1/4"-inch unbalanced
- » 13. ANTENNA CONNECTOR



EM901 Receiver

- » 14. POWER SWITCH / VOLUME
- » 15. BALANCE CONTROL
- » 16. 1/8" (3.5MM) HEADPHONE JACK
- » 17. DISPLAY
- » 18. (+) BUTTON
- » 19. SET BUTTON
- » 20. (-) BUTTON
- » 21. BELT CLIP
- » 22. BATTERY PACK



EM900 TRANSMITTER OPERATION

- » 1. **ATTACH ANTENNA :** Plug the antenna into the rear panel BNC connector (#13) and rotate the barrel 90 degrees clockwise until it locks into place.
- » 2. **ATTACH AC POWER CORD :** Firmly insert the provided AC cord into the rear panel AC power socket (#10).
- » 3. **CONNECT INPUTS TO SOURCE :** Using XLR or 1/4-inch plugs, connect the output of your mixer to the input jacks (#12) on the rear panel of the EM900 transmitter. One jack may be used if the transmitter and receiver are set for "MONO". Adjust the balance knob (#15) on the EM901 body pack receiver to the center position.



EM900 REAR

FREQUENCY SELECTION

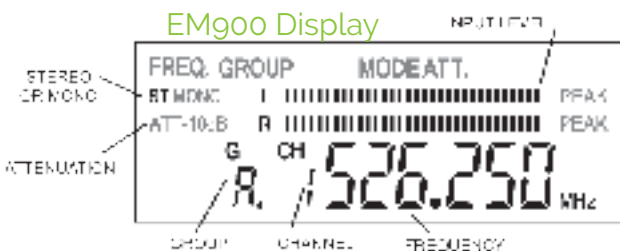
You can choose the transmitting frequency manually or use the group / channel preset feature (see group and channel setting in the section below).

- » 1. Hold down the SET button (#4) until "Freq" starts flashing. Use the (+) and (-) buttons to choose the desired frequency. Adjustments can be made in 25kHz increments.
- » 2. Press the SET button to store the frequency. The transmitting frequency is now stored in the EM900 transmitter.

GROUP AND CHANNEL SETTING SELECTION

The group and channel feature is designed to make operating multiple EM900 transmitters easier by using pre selected frequencies within a group. There are 4 groups available (A,B,C or D). There are 16 frequencies within each group specifically calculated to reduce inter modulation between the other frequencies in the group. To select a group and channel do the following:

- » 1. Hold down the SET button (#4) until "Freq" starts flashing. Press the SET button (#4) one time. With the "GROUP" now flashing, use the(+) button to select one of 4 groups (A,B,C or D).
- » 2. Press SET button again (#4) and use the (+) and (-) buttons to SET the desired channel (1 - 16). Press SET again to store both the group and channel selection into the EM900 transmitter.



STEREO OR MONO/MIX SETTING

In Stereo mode, both inputs are used to provide a left / right stereo image to the listener. In MONO mode, one or both inputs can be used depending on your needs. When using just one input, use CH.1 input on the EM900 transmitter. Using both inputs (CH1,CH2) while in STEREO mode allows you to send 2 different mixes to the receiver

- » 1. Hold down the SET button (#4) until "Freq" starts flashing. Press the SET button three times. With "MODE" now flashing, use the(+) and (-) buttons to select between mono and stereo modes on the EM900 transmitter.
- » 2. Press SET again to store the stereo/mono mode into the EM900 transmitter.

ATTENUATION MODE

In some situations, the incoming signal to the EM900 transmitter needs to be reduced to prevent the input from being distorted. The EM900 has a -10dB attenuator that can be activated.

- » 1. Hold down the SET button (#4) until "Freq" starts flashing. Press the SET button four times. With "ATT" now flashing, use the (-) button to activate the -10dB attenuation.
- » 2. Press SET again to store the attenuation setting into the EM900 transmitter.

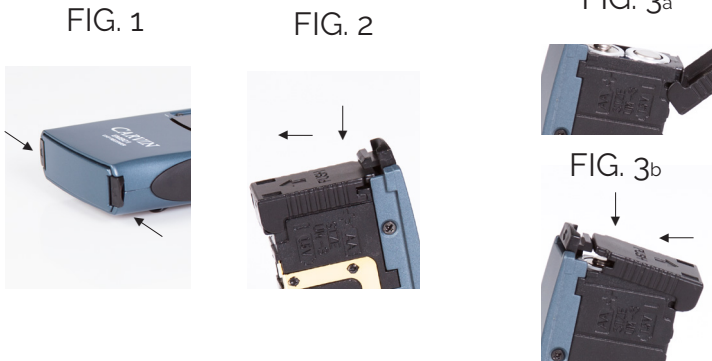
LOCK MODE

In some situations, you may want to prevent accidental changes with the EM900 transmitter settings. The lock mode can be activated to protect your EM900 settings.

- » 1. Hold down the SET button (#4) until "Freq" starts flashing. Press the SET button five times. With "LOCK" now flashing, use the (+) button to activate the lock setting.
- » 2. Press SET again to store the lock setting into the EM900 transmitter.
- » 3. To unlock the EM900, simply hold down the SET button (#4) until "LOCK" starts flashing, then press the (-) to unlock the unit. Press the SET button to store the unlocked mode into the EM900.

EM901 RECEIVER

» 1. INSERT BATTERIES : First, remove the battery pack from the receiver by pressing in the two tabs (see fig.1) at the bottom of the unit and sliding out the battery pack. Open the battery pack by pushing down first, then slide the battery cover off (see fig.2). Insert the batteries as shown on the battery pack (fig. 3a). Slide the cover back into position by pushing down first, then slide the cover on to secure the batteries. Insert battery pack into the EM901 receiver.

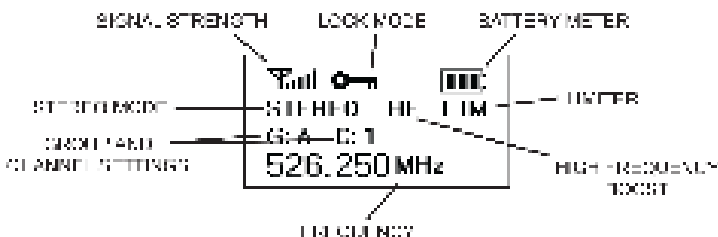


EM901 RECEIVER SET UP

FREQUENCY SELECTION

You must set the frequency of the EM901 to match the frequency of the EM900 base transmitter. If using the group/channel feature, see group and channel setting in the section below.

- » 1 Turn the EM901 to the on position by rotating the ON/VOL knob (#14). Hold down the SET button (#19) until the MENU list is visible. Press the SET button again to select frequency. Use the (+) and (-) buttons to choose the desired frequency. Adjustments can be made in 25kHz increments. .
- » 2. Press the SET button, then the (+) #18 to confirm the frequency. The frequency is now stored in the EM901 receiver. Pressing the (-) #19 will cancel the operation and bring you back to the MENU list.
- » 3. Once the frequency adjustments have been made, press the (-) button to scroll down to "exit" and press the SET button. The EM901 is now ready for operation.



EM901 Display

EM901 Receiver

- » 14. POWER SWITCH / VOLUME
- » 15. BALANCE CONTROL
- » 16. 1/8" (3.5MM) HEADPHONE JACK
- » 17. DISPLAY
- » 18. (+) BUTTON
- » 19. SET BUTTON
- » 20. (-) BUTTON
- » 21. BELT CLIP
- » 22. BATTERY PACK



GROUP AND CHANNEL SETTING SELECTION

If using the group and channel feature follow the steps below.

- » 1. Hold down the SET button (#19) until the MENU list is visible. Press the (-) button (#20) one time to select "Group/Channel". Press the SET button again. Use the (+) and (-) buttons to select one of the four groups (A,B,C or D).
- » 2. Press the SET button, then the (+) #18 to confirm the setting. the Group/Channel is now stored in the EM901 receiver. Pressing the (-) #19 will cancel the operation and bring you back to the MENU list.
- » 3. Once the Group/Channel selection has been made, press the (-) button to scroll down to "exit" and press the SET button. The EM901 is now ready for operation.

STEREO OR MONO/MIX SETTING

Select whether the EM901 operates in Stereo or Mono mode. In Mono mode one or both inputs on the EM900 transmitter can be used. In the case of using two inputs, the balance mix of the 2 inputs are adjusted by using the balance control knob #15 on the belt pack.

- » 1. Hold down the SET button (#19) until the MENU list is visible. Press the (-) button (#20) to select "Stereo/Mono". Press the SET button again. Use the (+) and (-) buttons to select the desired mode.
- » 2. Press SET to store and return to the MENU.
- » 3. Press the (-) button to scroll down to "exit" and press the SET button. The EM901 is now ready for operation.

HIGH FREQUENCY BOOST SETTING

The Hi Freq. Boost raises treble output in the mix. If the sound becomes distorted at high volumes, turn this feature OFF, or reduce the levels.

- » 1. Hold down the SET button (#19) until the MENU list is visible. Press the (-) button (#20) to select "Hi-Freq Boost". Press the SET button again. Use the (+) and (-) buttons to select ON or OFF.
- » 2. Press SET to store and return to the MENU.
- » 3. Press the (-) button to scroll down to "exit" and press the SET button. The EM901 is now ready for operation.

LIMITER

The dynamic limiter reduces volume peaks to help protect your hearing and increase your listening experience.

- » 1. Hold down the SET button (#19) until the MENU list is visible. Press the (-) button (#20) to select "Limiter". Press the SET button again. Use the (+) and (-) buttons to select ON or OFF.
- » 2. Press SET to store and return to the MENU.
- » 3. Press the (-) button to scroll down to "exit" and press the SET button. The EM901 is now ready for operation.

KEY LOCK

The key lock feature prevents accidental changes to the EM901 receiver during use.

- » 1. Hold down the SET button (#19) until the MENU list is visible. Press the (-) button (#20) to select "Key-Lock". Press the SET button again. Use the (+) button to select ON. Press the SET button again. The Key Lock is now engaged as indicated by the key icon.
- » 2. To unlock, Press SET and then the (+) key.

LCD DISPLAY CONTRAST

Adjust the contrast of the EM901 display using the CONTRAST feature.

- » 1. Hold down the SET button (#19) until the MENU list is visible. Press the (-) button (#20) to select "Contrast". Press the SET button again. Use the (+) and (-) buttons to adjust desired contrast.
- » 2. Press SET to store and return to the MENU.
- » 3. Press the (-) button to scroll down to "exit" and press the SET button. The EM901 is now ready for operation.

DISPLAY BACKLIGHT

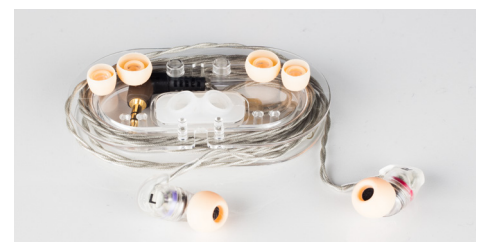
To conserve battery life, the display backlight can be shut off at various time settings ranging from always on, 30 , 20 , 10 , 5 , 2 , 1 seconds and always off. Keeping the backlight ON will greatly reduce the battery life.

- » 1. Hold down the SET button (#19) until the MENU list is visible. Press the (-) button (#20) to select "Light Time". Press the SET button again. Use the (+) and (-) buttons to adjust desired backlight time.
- » 2. Press SET to store and return to the MENU.
- » 3. Press the (-) button to scroll down to "exit" and press the SET button. The EM901 is now ready for operation.

EM902 EAR BUDS

The EM902 ear buds are designed to give you an unparalleled listening experience. Proper care and use will extend the life of the ear buds and maximize your user experience.

- » 1. Plug the EM902 earphones into the headphone jack (#16) on the receiver. Attach a pair silicone sleeves to the ends of the earphones.
- » 2. Follow the "L" and "R" markings on the earphones for left and right ear. Place the end of the earphone at the end of the ear canal and set the body of the earphone so your outer ear will hold it in place. The earphones should be worn with the wire hanging over the top of the ear.



EM902 EAR BUDS



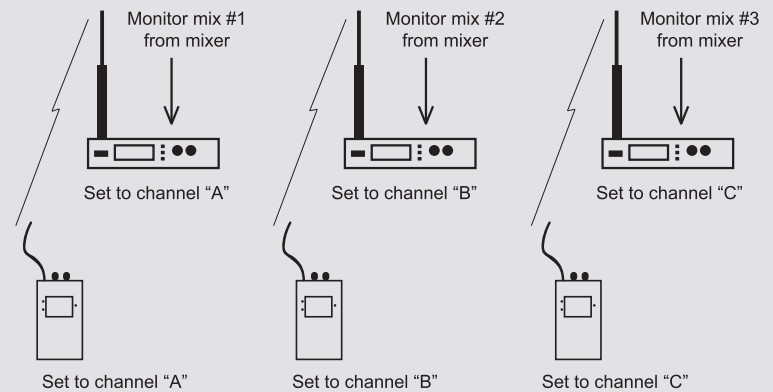
OSHA Recommended Maximum Exposure Time To Avoid Hearing Loss

LEVEL	MAX TIME
>115dB SPL	NONE
115dB SPL	28 seconds
112dB SPL	56 seconds
109dB SPL	1 minute 52 seconds
106dB SPL	3 minutes 45 seconds
103dB SPL	7 minutes 30 seconds
100dB SPL	15 minutes
97dB SPL	30 minutes
94dB SPL	1 hour
91dB SPL	2 hours
88dB SPL	4 hours
85dB SPL	8 hours
82dB SPL	16 hours
80dB SPL	24 hours (continuous)

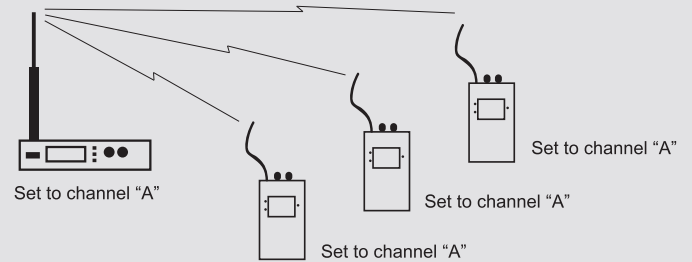
ADVANCED SETUPS:

- » A. MULTIPLE SYSTEMS: Up to 16 separate EM900 transmitters can be used at one time, with unlimited EM901 receivers.
- » B. MULTIPLE RECEIVERS: To use multiple receivers to monitor the same mix, simply set the receivers to the same frequency as the transmitter. Additional EM901 receivers are available from Carvin Audio.
- » C. MULTIPLE TRANSMITTERS WITH SAME MIX: To connect multiple transmitters to the same source, connect 1/4" cables from the LOOP OUT connector of the first unit into the INPUTS of the second unit. This can be useful in areas with very unpredictable RF conditions to provide better coverage and for redundant backups.

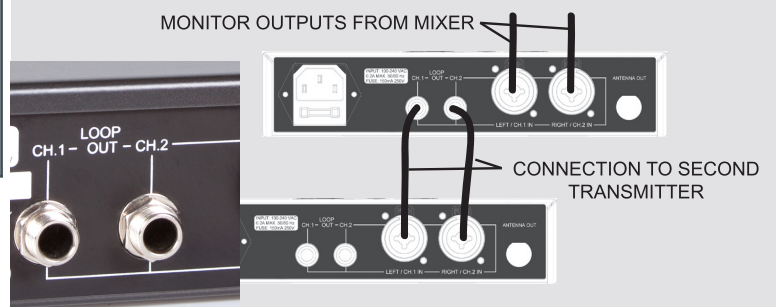
A. MULTIPLE SYSTEMS



B. MULTIPLE RECEIVERS



C. MULTIPLE TRANSMITTERS WITH THE SAME MIX



EM900 Audio Out

SPARE PARTS

Part#	Description
EM900ANT	Replacement antenna for EM900
EM901BATT	Replacement battery compartment
EMBATCLIP-4	Set of 4 battery compartment retention clips
EM901CLIP	EM901 body pack clip

