



**INTRODUCTION**

Thank you for purchasing the Carvin **PM1000** Wireless Personal In-Ear Monitor System and congratulations on your choice. This system offers all of the advantages of wireless in-ear monitoring—mobility, freedom from feedback and elimination of transport issues associated with conventional floor monitors—as well as the long term health benefits of safe listening levels. This wireless in-ear monitor system combines state-of-the-art advanced frequency-agile PLL synthesized UHF technology, high-end performance, ease of use, and unprecedented affordability. The **PM1000** offers a choice of 16 user selectable UHF channels in both the transmitter and receiver(s), as well as stereo (MPX system) or mono mode transmission. This system is indispensable for live-stage music performance, and is loaded with features previously found only in units costing several times more.



**USING THIS SYSTEM AT EXCESSIVE VOLUMES CAN CAUSE PERMANENT HEARING DAMAGE. ALWAYS USE AS LOW A VOLUME AS POSSIBLE.**

The Occupational Safety Health Administration (OSHA) has established the following guidelines for maximum time exposure to sound pressure levels (SPL) before hearing damage occurs:

- 90 dB SPL @ 8 hours
- 95 dB SPL @ 4 hours
- 100 dB SPL @ 2 hours
- 105 dB SPL @ 1 hour
- 110 dB SPL @ 1/2 hour
- 115 dB SPL @ 15 minutes

Avoid exposure to 120 dB or greater or irreversible ear damage may result. (Note: It is difficult to measure the SPL present at the eardrum in live sound applications. The volume present will be affected by the level setting of your **PM1001**, the ambient stage sound from your other instruments and speakers and fit of your in-ear monitors.)

Use the following guidelines:

1. Turn up the volume to your earphones only enough to hear properly. Experiment with your overall mix to get the maximum benefit from your **PM1000**. Whenever possible, turn the limiter on the **PM1001** receiver ON.
2. Turn down the volume immediately if you experience any pain or hearing discomfort or ringing in the ears after use.

**RECEIVING INSPECTION—read before getting started**

INSPECT YOUR PRODUCT FOR ANY DAMAGE which may have occurred during shipping. If any damage is found, please notify the shipping company and CARVIN immediately.

SAVE THE CARTON & ALL PACKING MATERIALS. In the event you have to re-ship your unit, always use the original carton and packing material. This will provide the best possible protection during shipment. CARVIN and the shipping company are not liable for any damage caused by improper packing.

SAVE YOUR INVOICE. It will be required for warranty service if needed in the future.

SHIPMENT SHORTAGE. If you find items missing, they may have been shipped separately. Please allow several days for the rest of your order to arrive before inquiring.

RECORD THE SERIAL NUMBER on the enclosed warranty card or below on this manual for your records. Keep your portion of the card and return the portion with your name and comments to us.

**PM1001 RECEIVER SPECIFICATIONS**

<b>Maximum Audio Output Level</b>	20 mW
<b>Minimum Audio Output Load Impedance</b>	16 Ω
<b>RF Sensitivity</b>	2.5μV (-100 dB/12 dB SINAD)
<b>Squelch Threshold</b>	< -90 dB
<b>Spurious Rejection</b>	> 55 dBc
<b>Audio Output Connector</b>	3.5 mm Stereo (Tip=left, Ring=Right, Sleeve=ground)
<b>Controls</b>	Volume adjust; limiter ON/OFF, power ON/OFF, STEREO/MONO select switches; 16-position channel selector switch
<b>Indicators</b>	Two-color (red/green) 3-way unit ON/Signal/Low Battery LED
<b>Power Requirements</b>	9V alkaline battery
<b>Current Drain</b>	< 40 mA
<b>Battery Life</b>	Up to 6 hours, volume dependent
<b>Antenna</b>	Internal
<b>Dimensions</b>	4.2" x 0.9" x 2.6" (106 x 23 x 66 mm)
<b>Weight</b>	2.85 oz (80 Kg)

**PM1000 TRANSMITTER SPECIFICATIONS**

<b>Operating Frequency Range</b>	696-865 MHz, country dependent
<b>Modulation</b>	Mono or stereo (MPX with pilot tone), FM: F3E +/- 60 KHz, nominal
<b>Audio Frequency Response</b>	50 ~ 15k Hz
<b>T. H. D.</b>	< 1%
<b>Signal-to-Noise Ratio</b>	> 80 dB, with proprietary noise reduction
<b>Operating Range</b>	Up to 300 feet typical (depending on site conditions)
<b>RF Output Power</b>	Max. 50 mW
<b>L/R Audio Line Inputs</b>	
<b>Connectors</b>	Balanced L& R dual XLR/1/4" inputs
<b>Input impedance</b>	600 Ω
<b>Nominal Input Level</b>	0 dBm
<b>Max. Input Level</b>	+6 dBm
<b>Headphone Connector</b>	1/4" stereo monitor output
<b>Headphones Out Power</b>	100 mW max. @ 32 Ω, 190 mW @ 16 Ω
<b>Spurious Emission</b>	> -55 dBc
<b>Frequency Stability</b>	+/- 100 PPM
<b>Controls</b>	Power ON/OFF, STEREO/MONO, and channel select switches; input level, headphones monitor volume controls
<b>Antenna connectors</b>	BNC antenna socket
<b>Indicators</b>	Power ON LED; channel LED and 10-segment L/R audio input LED displays
<b>Antenna</b>	1/4 wave rigid detachable, BNC mount
<b>Power Requirement</b>	12-15V/ 500mA, AC/DC adapter supplied (UL/CSA approved 120VAC or CE approved 230VAC)
<b>Dimensions</b>	8.27" x 9.13" x 1.73" (210 x 232 x 44 mm)
<b>Weight</b>	2.98 lbs (1.35 Kg)

For your records, you may wish to record the following information.

Serial No. \_\_\_\_\_ Invoice Date \_\_\_\_\_

**CARVIN**  
 12340 World Trade Drive, San Diego, CA 92128  
 (800) 854-2235  
 carvin.com



## PM1000 TRANSMITTER

### 1. RACKMOUNTING THE TRANSMITTER

The **PM1000** includes two rack-mount ears that are easily attached for single-space rackmounting. (Note: Do not mount directly above an amplifier or other source of high heat. Always ensure adequate airflow and heat dissipation in any rack configuration.)

### 2. ANTENNA

Connect the two **ANTENNA** to the front panel **BNC ANTENNA JACKS**. Optimal antenna position is vertical. For maximum range maintain a line-of-sight (no obstructions) between the transmitter antennae and the receiver(s).

### 3. AUDIO INPUTS

The **PM1000** transmitter features a **LEFT** and **RIGHT XLR-1/4"** balanced inputs. Stereo monitor mixes from your console can be connected to the **LEFT** and **RIGHT INPUTS** with either balanced XLR or 1/4" connectors. Two mono monitor mixes can also be inserted in this manner.

### 4. STEREO/MONO SWITCH

Select **STEREO** to retain discrete L-R stereo monitor mixes. Select **MONO** for mono mixes. Mono signals from inputs 1 and 2 are combined and transmitted in mono on both the left and right channels. Note that using balanced XLR cables will provide a stronger signal (+6dB louder than 1/4" cables).

**CAUTION:** When making any connection, make sure that the **PM1000 TRANSMIT LEVEL CONTROL** and the console output levels are set at minimum volume before plugging into the transmitter. This will avoid possible loud transients being heard by the person wearing the receiver and earbuds.

### 5. POWERING THE TRANSMITTER

Plug the **12V AC/DC ADAPTER** provided into the rear **DC INPUT JACK** on the back of the receiver. Then plug the power supply into an AC outlet. (Note: Any 12-15V DC source with 500mA capability can also be used.)

### 6. POWER SWITCH

Press the front **POWER SWITCH** to turn on the transmitter. The **POWER LED** will now illuminate.

### 7. TRANSMITTER CHANNEL SELECTOR-CHANNEL LED DISPLAY

Both the **PM1000** transmitter and **PM1001** receiver offer a choice of 16 channels in the UHF band. Select an open frequency that doesn't interfere with any other **PM1000** or UHF wireless system by turning the small **CHANNEL SELECT CONTROL** on the front panel of the **PM1000** until the channel you

want is displayed on the **CHANNEL LED DISPLAY**. A small screwdriver (one is included) will be required to turn the **CHANNEL SELECT** control. It is designed this way so the channels aren't switched accidentally. (**NOTE: you must also check with the receiver to set and ensure that the chosen channel is open i.e., no interference from other UHF sources...see PM1001 RECEIVER on the next page**) If different mixes are required for performers, additional **PM1000** transmitters and receivers set to other channels can also be used. Up to 8 **PM1000** systems on different frequencies can be operated simultaneously to provide multiple discrete mixes to the performers.

**NOTE: NEVER SET MORE THAN ONE TRANSMITTER TO THE SAME OPERATING FREQUENCY.**

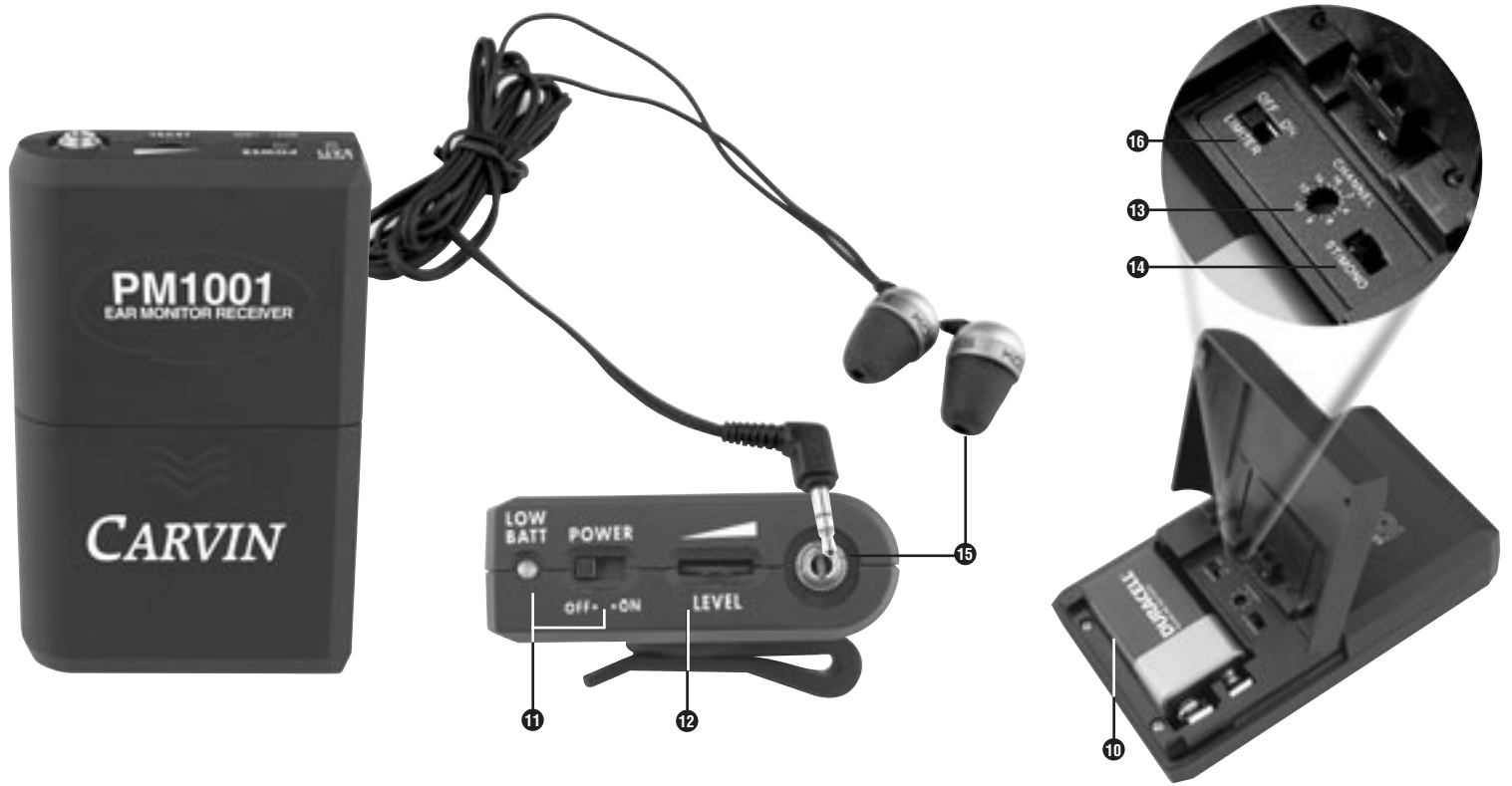
If you experience interference or unsatisfactory audio performance, change the channel until the problem goes away. In the extremely rare circumstance that such a problem persists, turn off all UHF wireless systems being used or physically move their receivers away from the **PM1000** transmitter. In some instances, UHF wireless systems and the **PM1000** system can interact if they are too close in frequency.

### 8. ADJUSTING TRANSMIT LEVELS

Adjust **TRANSMIT LEVEL CONTROL** for optimum transmit performance. This control adjusts both the left and right signals simultaneously in the same manner. For further control of each signal, use the left and right stereo monitor output level control on your console providing the signal. Adjust the **TRANSMIT LEVEL CONTROL** on the **PM1000** so that the first six **GREEN LED** indicators light. The top two **RED LED's** indicate the signal is near maximum which will result in distortion. Keep your levels from going into the **RED RED LED's**.

### 9. HEADPHONE MONITORING

The signal being transmitted can be monitored with a pair of headphones via the stereo **PHONES JACK**. The volume can be adjusted as desired with the **MONITOR LEVEL CONTROL**.



## PM1001 RECEIVER

### 10. BATTERY INSTALLATION

Slide down and flip open the **BATTERY COMPARTMENT** and insert a fresh 9V battery. Observe the correct polarity when installing the battery. The battery should last up to 6 hours, depending on the volume. It is recommended that it be changed every 3-4 hours to ensure continuous optimum performance.

### 11. POWER SWITCH - LOW BATT LED

Turn on the receiver with the **POWER SWITCH**. If the battery is good, the LED will glow **RED** when the **PM1000** transmitter is **OFF** and **GREEN** when it is on and tuned to the same channel as the receiver. If the battery is too weak for operation, the LED will flash on and off or not light at all. If this occurs during use, change the battery immediately.

### 12. RECEIVER VOLUME CONTROL

This will control the volume sent to the earbuds. It is recommended to start with the volume at minimum when turning on or plugging in the earbuds.

### 13. RECEIVER CHANNEL SELECTOR

Use a small screwdriver and adjust the **CHANNEL SELECTOR CONTROL (located inside the battery compartment)** to the same channel as the transmitter. The **LOW BATTERY LED** will change from red to green when it receives a signal from the **PM1000** transmitter. Any number of **PM1001** receivers can be used with a single **PM1000** transmitter set to the same channel. Although there are individual controls on each receiver allowing different levels of volume, each receiver will receive the same transmitted monitor mix (see Selecting Stereo or Mono Mode Reception below for exceptions). If different mixes are required for the different performers, additional **PM1000** transmitters and receivers set to other channels can be used. Each additional transmitter can then be fed a different mix from the console as desired.

### 14. STEREO/MONO CONTROL

Switch the **STEREO/MONO CONTROL** in the **BATTERY COMPARTMENT** to stereo or mono reception to match the **PM1000** transmitter. You can also try different combinations for different applications. For example, if multiple **PM1001** receivers are being used with one **PM1000** transmitting in stereo, the different performers may select either a stereo mix (which may feature vocals on one side and the rest of the mix on the other), or a mono mix (with the vocals and music mixed together). Such capability adds to the versatility of the

system by allowing more personal control of the individual sound received by different performers all listening to the same transmitted mix.

### 15. KOSS® EARBUD STEREOPHONES

The **PM1001** features a standard 1/8" **TRS STEREO EARPHONE MINI JACK**. Carvin has supplied **KOSS®** earbuds as these are renowned for their high-performance in-ear monitoring. The foam cushion will form a custom fit when inserted into the ear. This provides superior comfort and isolation from stage sounds. Additional foam cushions are provided for future use or for a more custom fit. **KOSS®** earbuds are uniquely designed with a tube that shoots sound into your ear. This results in excellent bass response and superior isolation from stage volume.

(Note: Wipe the earbuds before and after each use. Stop using the earphones if they are causing discomfort.)

### 16. LIMITER ON/OFF SWITCH

The **PM1001** receiver features a switchable limiter to help reduce audio spikes. Such spikes could be dangerous to the user wearing the earbuds. The limiter should be switched **ON** to ensure protection for the user. Turn the limiter off only if the **PM1001** is to be used at low volumes.

### MONITORING TIPS

- As with any in-ear monitoring system, be cautious with volume settings as you don't want your ears to be fatigued or damaged by excessive volume.
- Use an external compressor on vocals and drums whenever possible. This will also help with controlling transient spikes and allow for a more even monitor mix.
- The **KOSS®** earbuds will successfully isolate your ears from excessive stage volume. However, it is very helpful to have a single "room mic" mixed in slightly with the monitor mix to restore a "natural" hearing effect while wearing the earbuds. You will be able to isolate your ears from the loud stage volume and keep your in-ear monitor volume lower while still retain the ability to hear the crowd and other band members who are not speaking directly into a mic. Note: to avoid feedback it is recommended that this mic not be mixed in with your main mix. Assign it only to the mix going to the **PM1000**.

# MIXER CONNECTION

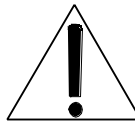


Set switch to MONO for two different mono monitor mixes.

**MONITOR SENDS**



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



### CAUTION

RISK OF ELECTRIC SHOCK  
DO NOT OPEN



### IMPORTANT! FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:

**WATER AND MOISTURE:** Unit should not be used near water (near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

**POWER SOURCES:** The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

**GROUNDING OR POLARIZATION:** Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

**POWER CORD PROTECTION:** Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

**SERVICING:** The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

**FUSING:** If your unit is equipped with a fuse receptacle, replace only with the same type fuse. Refer to replacement text on the unit for correct fuse type.

### SAFETY INSTRUCTIONS (EUROPEAN)

The conductors in the AC power cord are colored in accordance with the following code.  
GREEN & YELLOW—Earth BLUE—Neutral BROWN—Live

**U.K. MAIN PLUG WARNING:** A molded main plug that has been cut off from the cord is unsafe. NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAIN PLUG INTO A POWER SOCKET.

### Carvin's Limited 90 Day Warranty

Carvin warrants to the original purchaser that your unit is free from any defects in material or workmanship for a period of 90 days from the date of purchase. If any such defect is discovered within the warranty period, Carvin will repair or replace the unit free of charge, subject to verification of the defect or malfunction upon delivery.

All items for service are to be return to **Carvin (shipped prepaid), 12340 World Trade Dr., San Diego CA. 92128**

This warranty does not apply to physical damage from abuse, neglect, accident, being dropped or improper repair, alteration, or unreasonable use of the unit resulting in cracked or broken cases or parts, or units damaged by excessive heat, and does not apply to batteries or damage caused by leaking batteries. This warranty does not cover finish or appearance items nor items damaged during shipping en route to Carvin for repair.

#### Important:

If factory service is required, please contact our service department at **800-854-2235** to obtain a return authorization number (RA). Make sure the RA number is clearly marked on the outside of your package. If possible, please use your original packaging. Please include the Receiver, Transmitter and Power Supply. You must also include a photocopy of your proof of purchase. Carvin will not replace nor be responsible for any units sent incomplete, without proper identification and return address or RA number clearly marked on the package.

Any applicable implied warranties including warranties of merchantability and fitness are hereby limited to 90 days from the date of purchase. Consequential or incidental damages resulting from a breach of any applicable express or implied warranties are hereby excluded. This warranty is in lieu of all other agreements and warranties, general or special, express or implied and no representative or person is authorized to assume for us any other liability in connection with the sale or use of this Carvin Wireless System.

Carvin wireless systems are type accepted under FCC rules, parts 90, 74 and 15.

This device complies with RSS-210 of Industry & Science Canada. Operation is subject to the following two conditions: (1) this device may not cause harmful interference; and (2) this device must accept any interference received, including interference that may cause undesired operation.