

INTRODUCTION

Congratulations on your purchase of the USM16 SERIES Professional Modular Wireless System. The USM16 system is available pre-mounted in certain Carvin mixers, or may be purchased for self-installation with the USM16-KIT (consult Carvin for compatibility).

Your system includes a receiver along with a handheld mic with transmitter (USM16-MC) or a belt-pack transmitter (USM16-BP) depending on the model purchased. The headworn mic (UX-HM2), cable for instrument (UX-GT) and Lavalier mic (UX-LP1) are all available as additional options to the USM16-BP belt-pack system.

The receiver features true UHF diversity reception. Two antennas feed two completely independent RF receivers on the same frequency. Automatic logic circuitry continuously compares and selects the superior signal to provide better sound quality and reduce the possibility of interference and dropouts. Both the transmitter and receiver have 16 user selectable channels.

The versatile USM16-BP belt-pack transmitter is designed for use with condenser microphones as well as Hi-Z line instrument pickups. Please note that in multiple-system applications there must be one transmitter per receiver.

GETTING STARTED QUICKLY

If you're like most new owners, you're probably in a hurry to use your wireless system. To start, you must have a USM16 compatible Carvin product, at least one USM16 receiver, and the USM16-KIT (includes mounting hardware, circuit board and antennas).

If you have purchased this system separately, please start with the installation procedure on the back page of this manual.

If the unit has been pre-installed from the factory, you can follow these brief instructions to get you going quickly;

- 1. BATTERY** Insert 2 fresh AA alkaline batteries into the transmitter.
- 2. CHANNEL CHECK** Check that both the transmitter and receiver are set to corresponding channel. If multiple systems are used, each system must be set to their own channel.
- 3. BELT PACK SETTINGS** (USM16BP only) Connect the instrument cable or mic to the Belt-pack. Set the rear gain switch to -20 for mic or 0 for instrument use. Set the fine gain control to 12 o'clock. Reduce if distortion occurs.
- 4. RECEIVER POWER ON** Turn the Volume control of the receiver down and turn down the volume on the unit this system is mounted in. Make sure you are plugged in to the proper AC voltage and turn the power ON. This will power on the USM-16 receiver.
- 5. TRANSMITTER POWER ON** Switch the mic or belt-pack transmitter to the "ON" position. The red "RF" LED on the USM-16 should turn on.
- 6. SOUND CHECK** Do a sound check and gradually raise the levels while watching the AF level indicator. Increase the level until the AF level indicator peaks. This indicates that maximum transmitter modulation without distortion has been reached. You can adjust the AF level of the transmitter using the included small screwdriver.

RECEIVING INSPECTION—read before getting started

INSPECT YOUR WIRELESS SYSTEM 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.



REGULATIONS AND SERVICING

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

This device complies with INDUSTRY CANADA R.S.S. 210, en conformité avec IC: RSS-210/CNR210.

CAUTION! Electrical shock can result from removal of the receiver cover. Refer servicing to qualified service personnel. No user-serviceable parts inside. Do not expose to rain or moisture. The circuits inside the receiver and transmitter have been precisely adjusted for optimum performance and compliance with federal regulations. Do not attempt to open the receiver or transmitter. To do so will void the warranty, and may cause improper operation.

WARRANTY

90 days on all electronic components. Does not cover cable connectors or broken parts caused by normal wear or abuse.

RECEIVER USM 16

| | |
|------------------|---|
| Receiving System | Diversity- PLL Synthesized |
| Stability | ± 0.005% |
| Signal-to-noise | >100 dB |
| Image Rejection | >60 dB |
| THD | <1% @ 1kHz |
| RF Sensitivity | -107dBµ for 12 dB S/N AD |
| Connection | 20 pin PCB edgecard, 0.156" pitch. |
| Audio Output | -12 dBu / 600 ohm through conn. |
| Power Supply | Power through connector only |
| Dimensions | W: 3.30" (84mm) H: 1.22" (31 mm) D: 5.375" (136.5 mm) to PCB, 4.88" (124mm) to case. |
| Net Weight | 1 lbs (.5 kgs) |
| Accessories | USM-KIT (REQUIRED for mounting, holds up to 2 receivers) |
| Warranty | 90 days |

BELT PACK TRANSMITTER USM16BP

| | |
|---------------------|------------------------|
| RF Power Output | 3 mW |
| Spurious Rejection | < -60 dBc |
| Stability | ± 0.005% |
| Frequency Deviation | ± 48kHz |
| Battery | AA 1.5v alkaline qty 2 |
| S/N Ratio | >100dB (1kHz-A) |
| Current Consumption | 100mA typical |
| Dimensions | 2.56" W x 4" H x 1" D |
| Net Wt (no battery) | 2.8 oz (78 grams) |
| Warranty | 90 days |

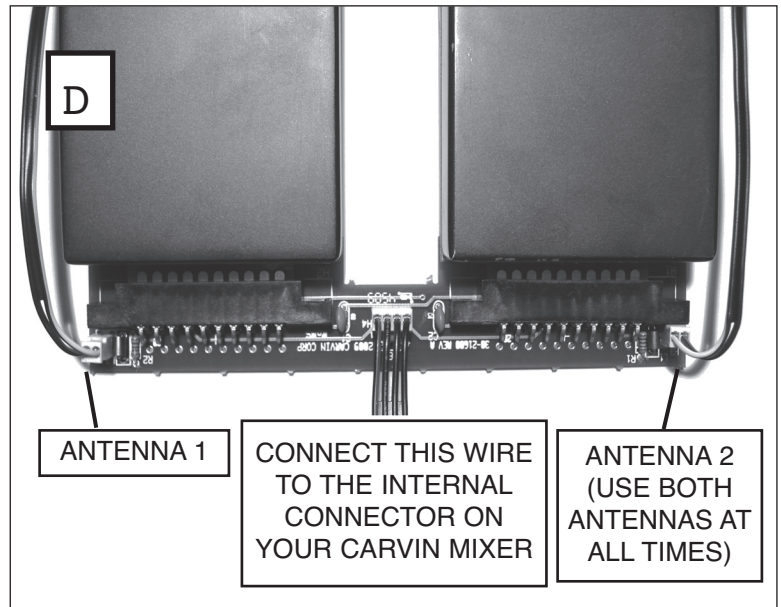
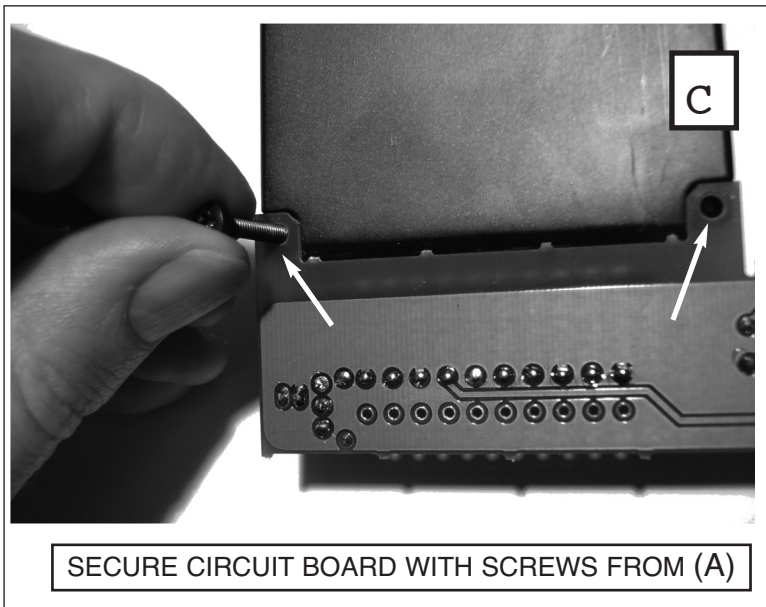
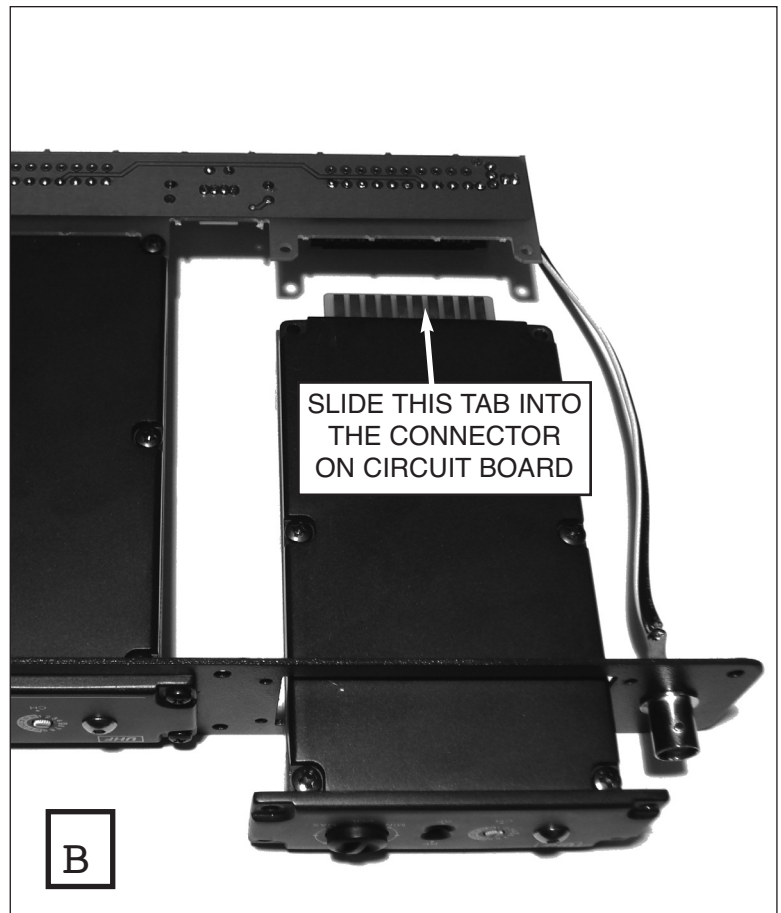
HANDHELD MIC TRANSMITTER USM16MC

| | |
|---------------------|---------------------------|
| Polar Pattern | Unidirectional |
| RF Power Output | 3 mW |
| Spurious Emissions | Under federal regulations |
| Dynamic Range | >100 dB |
| Battery | AA 1.5v alkaline qty 2 |
| Current Consumption | 30 mA typical |
| Battery Life | Approx. 25 hours |
| Dimensions | 9.50" long, 2.10" dia. |
| Net Wt (no battery) | 12.7 oz (360 grams) |
| Accessory Included | mic clip |
| Warranty | 90 days |

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

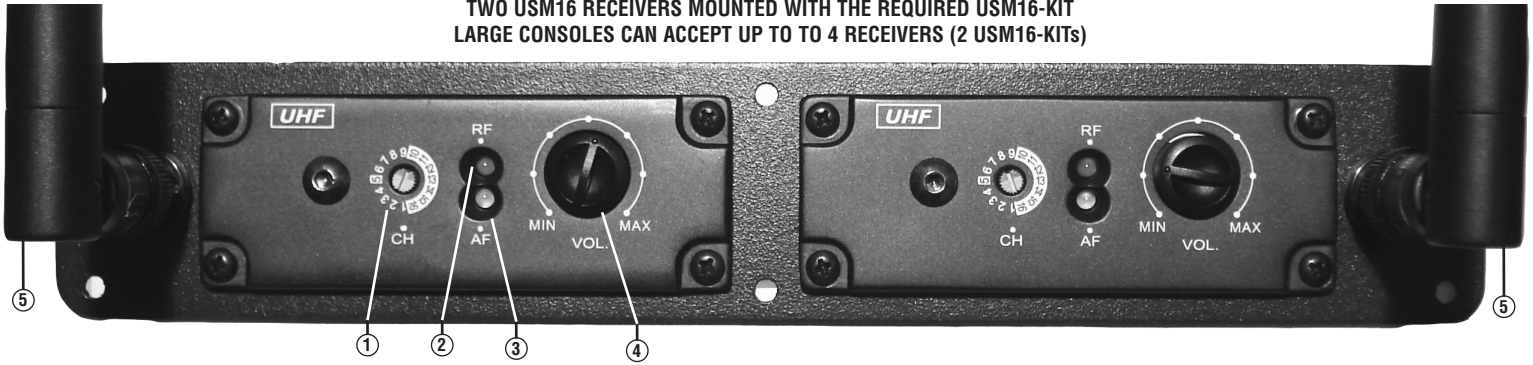
Serial No. _____ Invoice Date _____

USM16-KIT INSTALLATION PROCEDURE: FOLLOW STEPS (A) THROUGH (E).



FRONT PANEL CONTROLS

TWO USM16 RECEIVERS MOUNTED WITH THE REQUIRED USM16-KIT
LARGE CONSOLES CAN ACCEPT UP TO TO 4 RECEIVERS (2 USM16-KITs)



USM16 RECEIVER FRONT PANEL FEATURES

- 1. CHANNEL SELECTOR** Use a small screwdriver to select your desired channel. The mic or belt-pack transmitter must be set to the same channel.
- 2. RF LEVEL LED** The RF level is displayed by an LED which allows you to estimate the RF signal strength.
- 3. AF LEVEL LED** The AF LED indicates the strength of the audio signal.
- 4. VOLUME/OUTPUT CONTROL** Adjusts the output audio level to the mixer. If distortion occurs, reduce the level.
- 5. ANTENNAS** Dual antennas for Diversity signal reception. Use both antennas at all times for best operation.

TIPS TO OBTAIN THE BEST WIRELESS RESULTS

1. Use only fresh alkaline batteries. Replace batteries with every 25 hours of use.
2. Position the receiver so that it has the fewest possible obstruction between it and the normal location of the transmitter. Line-of-sight is best.
3. The transmitter and receiver should be as close together as conveniently possible.
4. The receiver antenna should be in the open and away from any metal or cement walls.
5. Turn the transmitter off when not in use. Remove the battery if the transmitter is not used for a period of time.

IMPORTANT RF OPERATION NOTES

Please note that wireless frequencies are shared with other audio services:

According to Federal Communications Commission regulations, "Wireless microphone operations are unprotected from interference from other licensed operations within the band. If any interference is received by any Government operation, the wireless microphone must cease operation..."

If you encounter receiving interference (from other than an operating TV station), often it can be eliminated by adjusting the receiver's antenna.

LIMITED WARRANTY

90 days on all wireless electronic components. Does not cover cables, connectors, or broken parts caused by normal wear and tear or by dropping. Shipping costs are the responsibility of the customer. CARVIN DOES NOT PAY FOR PARTS OR SERVICING OTHER THAN OUR OWN. A COPY OF THE ORIGINAL INVOICE IS REQUIRED TO VERIFY YOUR WARRANTY. Carvin assumes no responsibility for horn drivers or speakers damaged by this unit. This warranty does not cover, and no liability is assumed, for damage due to: natural disasters, accidents, abuse, loss of parts, lack of reasonable care, incorrect use, or failure to follow instructions. This warranty is in lieu of all other warranties, expressed or implied. No representative or person is authorized to represent or assume for Carvin any liability in connection with the sale or servicing of Carvin products. CARVIN SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

RETURNING AN ITEM

Before you return an item, please visit www.carvinservice.com and review the TROUBLE SHOOTING guide to verify that you have a real problem. Thoroughly check everything. Sometimes it's as simple as a switch in the wrong position or an improper connection.

If you wish to return an item, visit www.carvinservice.com and follow the RETURN PROCEDURE and shipping instructions. Start by completing the RMA RETURN FORM. Describe each problem in writing and include a copy of your original invoice if under warranty. If you do not have a copy of your original invoice, contact our accounting department at (800) 854-2235 to obtain a copy.

If your unit is out of warranty, you will be charged the current FLAT RATE for parts and labor to bring your unit up to factory specifications.

USMBP TRANSMITTER Fig. B

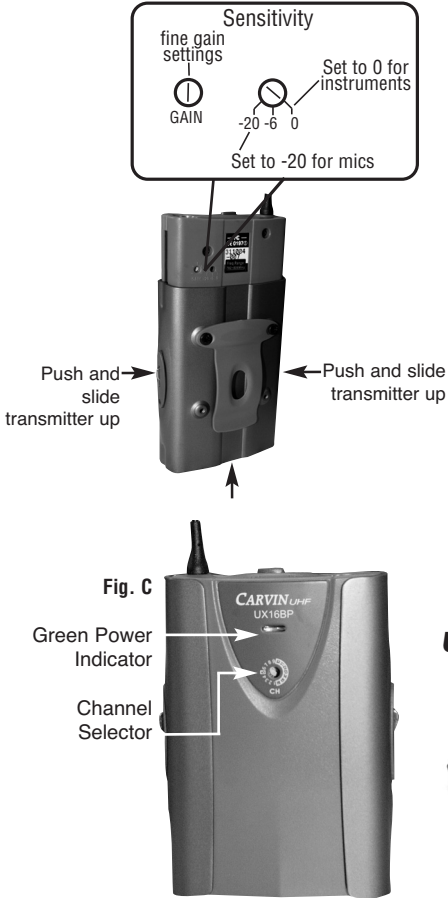


Fig. A

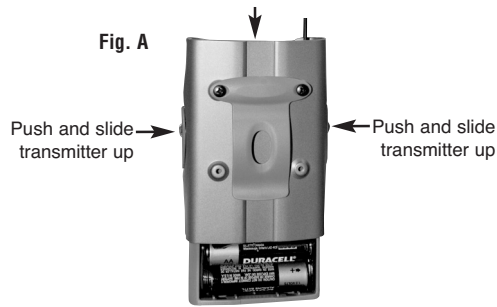
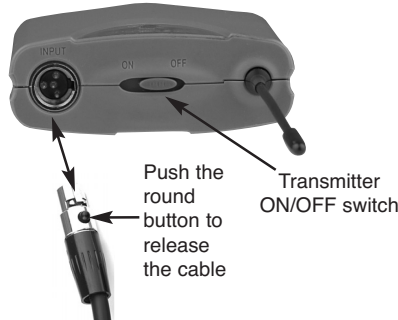


Fig. D Top View



UX-LP1 LAVALIERE MIC Fig. G



UX-HM2 HEAD MIC Fig. F



USM16-MC HAND HELD MIC Fig. H



USM16-BP BELT-PACK TRANSMITTER

1. BATTERY INSTALLATION/BELT CLIP Fig A. A metal belt clip case protects the transmitter and features a heavy-duty clip. To access the rear controls, push the two side release buttons on the belt clip. Slide the transmitter up to reveal the rear AF Gain control.

Push the two side release buttons on the belt clip. Slide the transmitter down to reveal the battery compartment. Insert fresh AA alkaline batteries, observing correct polarity as marked inside the battery compartment. Push up until the belt clip locks.

2. SENSITIVITY Fig B. The transmitter's sensitivity controls are located on the rear. Use the mini screwdriver to first set the Sensitivity switch to 0 for instruments or -20 for microphones. Use the mini screwdriver to make fine gain adjustments to the Sensitivity AF Gain for optimal transmitter volume. Decrease the gain if distortion is heard.

3. BATTERY/POWER INDICATOR Fig C. The GREEN indicator should light when the transmitter is ON. With fresh batteries it will shine strongly. As the batteries weaken, the indicator will grow dimmer. When the indicator becomes very dim or goes out, replace the batteries for continued operation. Expect about 25 hours of use from a set of alkaline batteries.

4. CHANNEL SELECTOR Fig C. The transmitter has 16 different channels. If you encounter signal interference, try selecting an alternate channel. Make sure the receiver is set to the same channel as the transmitter. Use a small flat-head screwdriver to change the channel.

5. INPUT CONNECTOR Fig D. The mini XLR input jack will connect a Lavalier mic, headset mic, or instrument cable to the transmitter. Line up the notches on the side of the jack and plug. Push in until the cable locks into the jack. To unplug the mini XLR cable, press the round release button on the cable to unlock it from the jack.

6. TRANSMITTER ON SWITCH Fig D. Turn the receiver volume down before turning the transmitter power ON. The transmitter ON-OFF switch is located at the top of the unit. In the ON position, the GREEN indicator Fig B should illuminate.

UX-HM2 HEADSET MIC (OPTION)

1. CONNECTION Fig D. & Fig. F

Connect the mic cable to the transmitter's mini XLR input jack. Place the mic on vocalist head. Keep the mic a minimum of 2 inches from the mouth. Adjust the mic position to minimize air from hitting the mic.

UX-LP1 LAVALIERE MIC (OPTION)

1. CONNECTION Fig D. & Fig. G Connect the lavalier mic cable to the transmitter's mini XLR input jack. Clip the mic to a shirt. For optimum sound, position the mic as close to the mouth with the top of the mic facing up. Test out various positions along the center of the chest to determine the ideal mic placement. This may vary from person to person as each voice projects uniquely.

UX-GT INSTRUMENT CABLE (OPTION)

1. CABLE CONNECTION Fig D.

Connect the cable to the belt-pack transmitter's mini XLR input jack. Plug the 1/4" connector into a guitar. Turn the receiver volume down before turning the transmitter power ON.



USM16-MC HAND HELD MIC

1. BATTERY INSTALLATION Fig H.

While holding the lower part of the transmitter body, unscrew the windscreen ball on top of the mic. Press the release clip to eject the battery dock. Install fresh AA alkaline batteries. Replace the battery dock and make sure the clip snaps into the locked position so the battery dock won't slide out. Match the 4 pins on the mic handle to the windscreen ball and turn clockwise until tight.

2. POWER ON AND CHANNEL SELECT Fig H.

Squeeze the release tab on the top of the mic end cap. Pull the cap off to reveal the power switch and channel selector. Make sure to turn the receiver volume down before turning the mic power ON. The Green LED indicates the mic is ON. Turn the volume up on the receiver to set your level. Make sure the receiver is set to the same channel as the mic. Use a small flat-head screwdriver to change the channel.