



# 401x QUAD

*4-Channel VHF Wireless Microphone System*



**OWNER'S MANUAL**

## TABLE OF CONTENTS

System Features .....	2
Operation: 401X QUAD Receiver.....	3
WHT Handheld Microphone Transmitter .....	5
WLT Lavalier/Lapel or Headworn Microphone .....	6
WGT Instrument Bodypack Transmitter.....	8
Specifications .....	10
Service Information / Warranty.....	11

## INTRODUCTION

Thank you for purchasing a Nady 401X QUAD VHF Wireless Microphone System. The 401X QUAD VHF is by far the best price/performance value available in multiple channel wireless systems. Please read the instructions in this manual completely before operating your unit.

## USING THIS MANUAL

This booklet provides instructions for the operation of the Nady 401X QUAD four-channel VHF wireless, including handheld, instrument, lavalier, headmic and plug-in transmitter systems. Features of the 401X QUAD are listed, followed by step-by-step instructions explaining how to operate your new system. After reading the receiver instructions, turn to the section of the booklet that covers the type of transmitter used with the system you have purchased. Each section will give you detailed operating instructions. Also included in this manual are system specifications and servicing information.

## SYSTEM FEATURES

### 401X QUAD Receiver

- Four independent VHF receivers in one convenient, rugged, all-metal single rack space housing—makes operating 4 wireless systems at the same time easier than ever
- Front-mount dual antenna jacks for either onboard or remote antennas
- Front panel Power ON/OFF switch, plus Power ON LED, TX ON and AF signal level LED displays
- Rear panel individual XLR AF Output jacks, volume and RF mute controls for each of the 4-channels, and 4-Channels-Mixed AF Out 1/4" phone jack
- Noise-free transmitter ON/OFF operation
- High performance – unmatched transparent audio with 120 dB dynamic range and up to 250+ feet optimum line-of-sight operation

### WHT Handheld Microphone Transmitter

- Features the Nady DM -10D unidirectional neodymium dynamic cartridge for optimum true sound, maximum feedback rejection and minimal handling noise
- OFF/STANDBY/ON switch allows convenient audio muting with the transmitter "ON"
- Low battery LED indicator flashes once for unit "ON"; lights steady for low battery alert

### WGT & WLT Bodypack Transmitters

- Choice of instrument (WGT-15) or headworn/lavalier microphone (WLT-15) bodypack transmitter
- OFF/STANDBY/ON switch allows convenient audio muting with the transmitter "ON"
- Low battery LED indicator flashes once for unit "ON"; lights steady for low battery alert
- Locking 3.5mm mini-jack provides secure connection for removable mic or instrument cable
- Easily accessible input level adjust control for optimal sound

## 401x QUAD Receiver

### 1. Powering the Receiver

Plug the 16V **AC/DC ADAPTER (1)** provided into the **DC INPUT JACK (11)** on the back of the receiver. Then plug the power supply into an AC outlet. *[Note: Any 16V DC source with 800mA capability can also be used.]*

Turn **VOLUME CONTROL (6)** for all four channels counterclockwise to minimum located on the front of the receiver. Once the receiver is connected to a power source, press the **POWER SWITCH (3)** to ON position. The **POWER ON LED (4)** indicator will light up.

The **TX LED INDICATOR (7)** on the front panel of the receiver will not light up until one or more of the four channels is receiving a signal from your system's transmitter.

### 2. Antennas

The **ANTENNAS (2)** assembly consists of two antennas. Connect antennas into the **ANTENNA JACKS (5)** on the front of the receiver. Extend the antennas fully to obtain maximum range. Position **ANTENNAS (2)** at 45 degrees from the horizontal; 90 degrees from each other. For maximum range, it is always best to maintain a line of sight (no obstructions) between the receiver antennas and the transmitter whenever possible.

### 3. Mute (Squelch) Adjustment

In normal operation, the **MUTE CONTROL (9)** should be set fully counterclockwise to the factory preset minimum RF level of 1 $\mu$ V for maximum sensitivity. Doing so sets each receiver for maximum range. However, in areas of high RF activity, the mute (or squelch, as it is sometimes called) may need to be adjusted to compensate for the adverse conditions in a particular location. If, with the transmitter off, its corresponding LED on the receiver front panel flickers or stays on, the **MUTE CONTROL (9)** should be turned clockwise until the LED extinguishes. For each of the four channels, when the Mute is properly adjusted, the corresponding LED will light only when the system's transmitter is turned on. Turning the **MUTE CONTROL (9)** too far clockwise will result in reduced range, but yield a quieter signal during dropouts or at the end of the operating distance range.

### 4. Connecting the Audio Output

The output stage of each channel and the separate four channels mixed output of the 401X QUAD are all configured for adjustable unbalanced LINE and fixed balanced XLR line or microphone audio outputs. The adjustable unbalanced 1/4" mix out is a low level LINE with an output impedance of 600 ohms. The individual fixed level balanced XLR out can be configured as high level line out with 11k ohms output impedance or microphone level out with a 600 ohms load impedance.

For each channel you wish to use, insert an audio cord with a balanced female XLR plug into its **AF OUTPUT (10)** jack on back of the receiver. Plug the other end of each cord into your amplifier, effect or mixing board. Adjust volume on your mixing board so that no audio distortion is present when amp or mixer is set at its usual level. *[Note: To prevent possible undesired noises during use, leave the volume controls of unused channels (with the corresponding transmitter off) turned off in the amp or mixer. The audio should only be "live" if the transmitter is on.]*

If you want to use the 401X QUAD as its own mixer (your amplifier, effect or mixing board should have 12dB or more gain select on), you can connect to the **MIX AF OUTPUT (8)** which provides a mixed line output of up to all four channels, with the relative volume of each channel in the mix determined by that channel's **VOLUME CONTROL (6)**.

# OPERATION

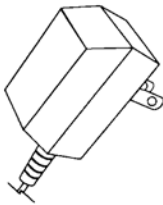
## a. Instrument Connection (using the WGT instrument transmitter)

Insert an audio cord with a ¼" mono phone plug in the **AF OUTPUT JACK (8)** on the rear panel of the receiver. Plug the other end of the cord into amplifier, effect or mixing board. Adjust the **VOLUME CONTROL (6)** on the 401X QUAD clockwise to about ¾ rotation until the volume level is comfortable for your application. This setting is roughly equivalent to direct instrument cord connection. Turning the volume up to maximum will provide 4dB gain over a cord.

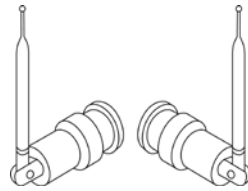
## b. Microphone Connection (using the WLT transmitter with either a headset or lavalier microphone or the WHT handheld microphone transmitter)

Insert an audio cord with a ¼" mono phone plug in the **AF OUTPUT JACK (8)** on the rear panel of the receiver. Plug the other end of the cord into amplifier, effect or mixing board. Adjust the **VOLUME CONTROL (6)** on the 401X QUAD clockwise to about ½ MAX and adjust the volume control until the volume level is optimal. If the volume control is set too high, you may overload your mixer or amp.

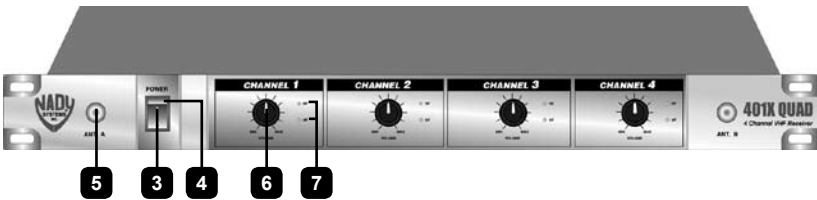
Since your 401X QUAD is comprised of four separate and independent XLR output channels, it can be used with either one, two, three or four channels operating. Simply turn your mixer volume control of any channel which you are not using to minimum. If the mix line out is used, just turn down the 401X QUAD receiver's volume controls.



16V AC/DC Adapter



Antennas

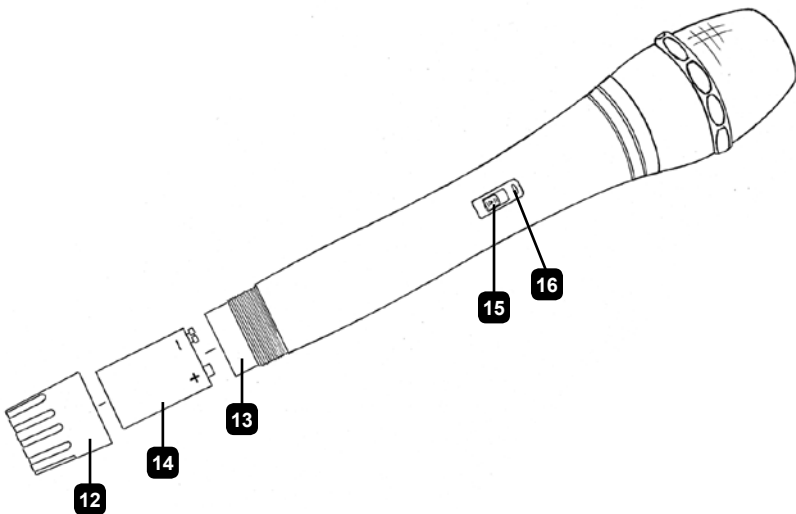


## WHT Handheld Microphone Transmitter

1. Unscrew the **BATTERY COMPARTMENT COVER (12)** and remove, exposing the **BATTERY HOLDER (13)**. Insert a fresh 9V **ALKALINE BATTERY (14)**, observing the correct polarity as marked, and screw the cover back on to the microphone. Make sure the cover is screwed on completely. A fresh alkaline battery can last up to 15 hours in use, but in order to ensure optimum performance, it is recommended that you replace the battery after every ten hours of use.
2. Turn on the WHT by sliding the **OFF/STANDBY/ON SWITCH (15)** to the STANDBY position (transmitter on, audio muted) or the ON position (transmitter and audio both on). The **BATTERY INDICATOR LED (16)** will give a single quick flash, indicating usable battery strength. In the case of a dead or low battery, the LED will either not go on at all or will stay on continuously, indicating that the battery should be replaced with a fresh one. To preserve battery life, turn the transmitter off when not in use.
3. The microphone is now ready to use. The **TX LED INDICATOR (7)** on the 401X QUAD receiver should now be lit, indicating a received signal from the transmitter. When ready to speak, slide the transmitter switch to the ON position. Adjust the volume of the receiver as per the Audio Output Microphone Connection section of the above 401X QUAD receiver instructions. The **AF LEVEL LED DISPLAY (7)** on the 401X QUAD receiver will light up as if the input signals are getting stronger. Occasional flickering on and off during use of the LED indicator is normal. However, if the LED stays on continuously, it means the signal is too loud and there is the possibility of overload distortion. If this occurs, back off from the microphone until the red LED indicator only flickers on peaks.

*[Note: Observe care in selecting PA volume, transmitter location and speaker placement so that acoustic feedback (howling or screeching) will be avoided.]*

*[Note: Microphone elements can easily be destroyed by the buildup of salts and minerals from perspiration and saliva. It is good practice to put a windscreen on the mic element at all times to protect it.]*



## WLT Lavalier/Lapel or Headworn Microphone

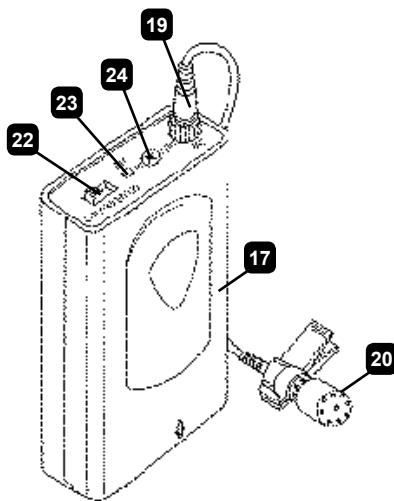
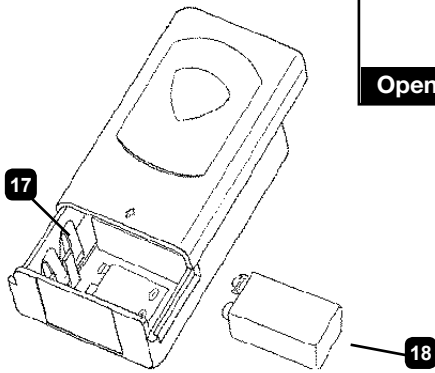
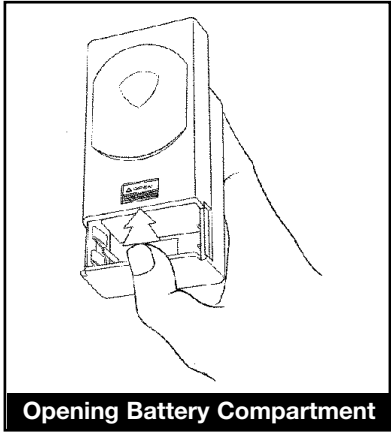
### Bodypack Transmitter

1. Snap open the **BATTERY COMPARTMENT (17)** and insert a fresh **9V BATTERY (18)**, observing the correct polarity. Close the compartment.
2. The WLT is provided with a 3.5 mm **LOCKING JACK (19)** for connecting the microphone. Plug in either the **LAVALIER/LAPEL (20)** or the **HEADWORN MICROPHONE (21)**, as supplied. To secure the connection, turn the metal slip ring on the plug clockwise to thread it on to the jack. To unplug, reverse the process. Slip the transmitter into a pocket or clip on to your clothes. To use the lavalier mic, attach it at chest level. Do not place too close to the mouth—a distance of about six inches usually works best. To use the headworn mic, place it on the head and adjust the mic boom so that the mic is about one inch to the side of the front of the mouth.  
*[Note: The lavalier or headworn mic wire is also the transmit antenna, and rolling up or shortening the wire may reduce the effective operating range. Extend the wire fully during use and keep it as straight as possible.]*
3. Turn on the WLT by sliding the **OFF/STANDBY/ON SWITCH (22)** to the STANDBY position (transmitter on, audio muted) or the ON position (transmitter and audio both on). The **BATTERY INDICATOR LED (23)** will give a single quick flash, indicating usable battery strength. In the case of a dead or low battery, the LED either will not go on at all or will stay on continuously, indicating that the battery should be replaced with a fresh one.
4. The microphone is now ready to use. The **TX LED INDICATOR (7)** on the 401X QUAD receiver should now be lit, indicating a received signal from the transmitter. When ready to speak, slide the transmitter switch to the ON position and adjust the volume of the receiver as per the Audio Output Microphone Connection section of the above 401X QUAD receiver instructions. The **AF LEVEL LED DISPLAY (7)** on the 401X QUAD receiver will light up as if the input signals are getting stronger. Occasional flickering on and off during use of the LED indicator in this display is normal, however if the LED stays on continuously, it means the signal is too loud and there is the possibility of overload distortion. Re-position the microphone farther from the source or adjust the **AUDIO INPUT LEVEL CONTROL (24)** until the red LED indicator flickers only on the loudest inputs.

*[Note: Observe care in selecting PA volume, transmitter location and speaker placement so that acoustic feedback (howling and screeching) will be avoided. Please also observe the pickup patterns of the microphone selected: omnidirectional mics pick up sound equally from all directions and are prone to feedback if not used carefully. Unidirectional mics are more resistant to feedback, but pick up sound sources best that are directly in front of the mic. Also, mics that are farther from the sound source, such as lavaliers, require more acoustic gain and thus are also more prone to feedback than close-source mics such as handheld or headworn mics that are used close to the mouth.]*

*[Note: Microphone elements can easily be destroyed by the buildup of salts and minerals from perspiration and saliva. It is good practice to put a windscreen on the mic element at all times to protect it.]*

# OPERATION



## WGT Instrument Bodypack Transmitter

1. Snap open the **BATTERY COMPARTMENT (25)** and insert a fresh **9V BATTERY (26)**, observing the correct polarity. Close the compartment. The WGT-15 is provided with a 3.5 mm **LOCKING JACK (27)** for connecting the **INSTRUMENT CABLE (28)**. To secure the connection, turn the metal slip ring on the plug clockwise to thread it on to the jack. To unplug, reverse the process. Slip the transmitter into a pocket or clip on to your clothes or instrument strap.

*[Note: As the cord to the instrument also serves as the antenna, be sure to extend it fully for maximum range. Rolling up or shortening the cord may reduce the effective operating range.]*

2. Turn on the WGT by sliding the **OFF/STANDBY/ON SWITCH (29)** to the STANDBY position (transmitter on, audio muted) or the ON position (transmitter and audio both on). The **BATTERY INDICATOR LED (30)** will give a single quick flash, indicating usable battery strength. In the case of a dead or low battery, the LED either will not go on at all or will stay on continuously, indicating that the battery should be replaced with a fresh one.
3. The WGT transmitter is now ready to use. The **TX DISPLAY LEDs (7)** on the 401X QUAD receiver should now be lit, indicating a received signal from the transmitter. Adjust the volume of the receiver as per the Audio Output Instrument Connections section of the above 401X QUAD receiver instructions. The **AF LEVEL LED DISPLAY (7)** on the 401X QUAD receiver will light up as if the input signals are getting stronger. Occasional flickering on and off during use of the LED indicator is normal. However, if the LED stays on continuously, turn down the instrument volume control or noticeable distortion may result. For ultra high-gain instrument sources such as active bass pickups or even extra hot guitar pickups, an attenuation pad may be required to eliminate unwanted distortion.

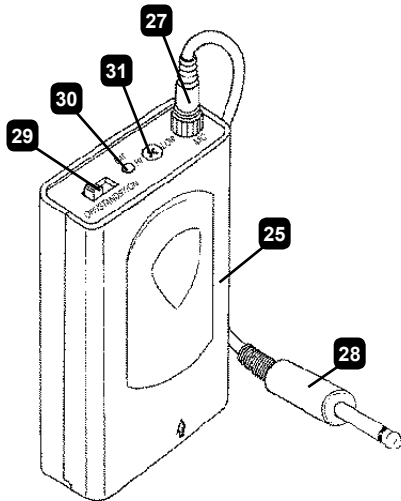
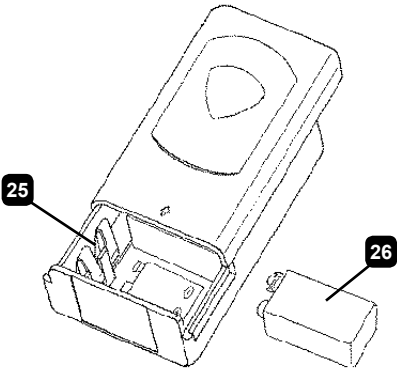
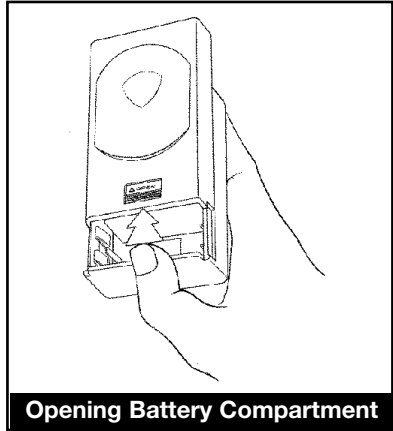
*[Note: The **INPUT LEVEL CONTROL (31)** is not operable because it is preset and switched internally at the factory to instrument GT input mode. The control is only used for Headworn Mic (HM) and Lavalier (LT) input modes.]*

*[Note: Scratchy noises can sometimes occur when some electric guitars/basses with dirty pots or connections are used with any wireless system. For this reason, the supplied **INSTRUMENT CORD (28)** has a factory installed capacitor inside the ¼" plug. This capacitor provides first order filtering of the RF signal from the cord into the guitar and eliminates virtually all scratchy noises. Should your equipment still produce scratchy noises, we suggest these steps to eliminate them:*

- 1) Make sure all guitar volume and tone pots are clean and all contacts are solid—this is very important.
- 2) Provide extra filtering with a 220 pF capacitor soldered across the hot to ground terminals of the guitar's volume and tone pots.)



# OPERATION



# SPECIFICATIONS

## OVERALL SYSTEM PERFORMANCE

Frequency Response .....	30-18KHz (-3dB)
Dynamic Range .....	120dB (20-20KHz)
Total Harmonic Distortion .....	<0.5% (typical)
RF Carrier Frequency Range .....	170-230MHz (Factory installed Channels)
Frequency Stability .....	+/- 0.005%, crystal controlled
Modulation .....	FM (F3E), +/-15KHz nor, +/-30KHz max
Operating Range .....	250 feet typical — up to 500+ feet optimum line-of-sight

## TRANSMITTERS

### Audio Inputs

WHT .....	Nady DM-10D neodymium dynamic cartridge
WLT/WGT .....	3.5mm mono locking jack for connecting to omni or unidirectional lavalier mic or unidirectional headworn mic, with phantom power (WLT); or connecting to instrument cable (WGT)

### Controls

WHT .....	OFF/STANDBY/ON switch
WLT/WGT .....	OFF/STANDBY/ON switch, input level adjust

LED Indicator .....	Unit "ON" (single flash), Low Battery Alert (steady)
RF Power Out .....	50mW (Max. allowed by FCC)
Harmonic & Spurious Emissions .....	<-40dB
Battery .....	9V Alkaline
Battery Life .....	Up to 20 hours

### Dimensions

WHT .....	9.5" X 1.4" diameter. (24.1 X 3.5 cm)
WLT/WGT .....	4.1" X 2.4" X 0.8" (10.4 X 6.1 X 2.0 cm)

### Weight (w/o battery)

WHT .....	6.9 oz (193 g)
WLT/WGT .....	3.6 oz (101 g)

## RECEIVER

Controls .....	Power ON/OFF, volume control, mute control
Connectors .....	1 unbalanced adjustable mixed (all four channel) ¼" T-S audio output jack. Line level, 600 ohms 4 balanced fixed level XLR. #1=GND, #2-3=signals Line/Mic level, 11k/600 ohms
Receiver .....	2.1 mm barrel-type DC input jack (tip=positive)
LED Indicators .....	1 Power ON LED, 4 AF LED, 4 TX ON LED
Dimensions .....	1.75" x 7.5" x 16.5" (4.4 x 19 x 42 cm)
Weight .....	4.5 lbs (2 Kg)
Power Requirements .....	16V @ 800mA, nominal, AC/DC adapter supplied
Antenna Connectors .....	Dual female BNC connectors

## SERVICE INFORMATION

**In the U.S.** If you are experiencing operational problems with your system, please refer to the Support page at [www.nady.com](http://www.nady.com) for assistance. Should your wireless system require service, please contact the Nady Service Department at (510) 652-2411 for a Return Authorization (R/A) Number and service quote (if out of warranty). Make sure the R/A Number is clearly marked on the outside of the package that you are returning.

If your unit is out of warranty, please enclose a cashier's check or money order (or pay by credit card) per instructions by the Nady Service Department. Ship your unit prepaid to: Nady Systems, Service Department, 6701 Shellmound Street, Emeryville, CA 94608. Include a brief description of the problem you are experiencing. For service of a unit under warranty, please follow the instructions in the following section.

**Outside the U.S.** For service and warranty matters please contact the Nady distributor in your country through the dealer/store from which you purchased this product.

**Do not attempt to service this unit yourself as it can be dangerous and will also void the warranty.**

## ONE YEAR LIMITED WARRANTY

Nady Systems, Inc. warrants to the original consumer purchaser that the above unit is free from any defects in material or workmanship for a period of one year from the date of original retail purchase. If any such defect is discovered within the warranty period, Nady Systems, Inc. will repair or replace the unit free of charge, subject to verification of the defect or malfunction upon return to Nady Systems.

To the extent permitted by law, any applicable implied warranties, including warranties of merchantability and fitness are hereby limited to one year 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 including a Nady dealer, agent, or employee is authorized to assume for us any other liability in connection with the sale or use of this Nady Systems' product.

Whereas some states do not allow limitations on how long implied warranties last, and do not allow exclusion of incidental or consequential damages, the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

**This warranty is subject to the following conditions:**

- 1) This system must have been purchased from an authorized Nady dealer and all warranty service must be performed by Nady's service department. Any service not performed by Nady will automatically void this warranty.
- 2) Items not covered: physical damage resulting from improper handling of the unit in transit from the factory by the shipper (Nady Systems is not responsible for such damage and all such claims must be made against the shipping company by the consignee.); defects caused by normal wear of the product (expendable parts are typically connectors, cables, potentiometers, switches and similar components); damage or defects caused by abuse, neglect, accident, failure to connect or operate the unit in any way that does not comply with applicable technical or safety regulations, or improper repair, excessive heat or humidity, alteration or unreasonable use of the unit, causing cracks, broken cases/housings or parts; damage caused by leaking batteries; finish or appearance items; items damaged in shipment en route to Nady Systems, Inc. for repair. The warranty is null and void if any Nady serial number has been removed or defaced.

**How To Obtain Service:**

- 1) If factory service is required, you must contact our Service Department at (510) 652-2411 for a return authorization (R/A) number. Make sure the R/A number is clearly marked on the outside of your package. (Please note: if an R/A number is not included, our Shipping Department cannot accept your package.)
- 2) Send the unit back to Nady Systems, Inc., 6701 Shellmound Street, Emeryville, CA, 94608, freight pre-paid. You must include proof of date and place of purchase (i.e., photocopy of your bill of sale) or Nady cannot be responsible for repair or replacement. Nady Systems, Inc. will not repair, nor be held responsible, for any units returned without proper identification, return address, and RA number clearly marked on the package.
- 3) Per the above, Nady will perform all warranty service and return the unit to you at no charge. Nady Systems will inform the buyer if product sent in does not meet the terms of this warranty and will provide a quote for fixing the unit and/or shipping it back exclusively at the buyer's expense.

Nady wireless microphone 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.



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