NADY SYSTEMS INC.

Owner's Manual

DW-11/DW-22

Digital Wireless Microphone Systems

DW-11 Single Receiver/DW-22 Dual Receiver

CONTENTS

INTRODUCTION

Thank you for purchasing a NADY DW-11/DW-22 Digital Wireless Microphone System . I know you will be pleased with your choice. Your system is loaded with top professional operating features and offers the best performance and price value available in digital wireless.
With 24-bit digital audio conversion technology, low latency, and clear channel operation on the UHF 900MHz band. This unit is simple to operate and provides interference-free performance for any application or locale.

USING THIS MANUAL

This booklet provides instructions for the operation of both the DW-11 Single Receiver and DW-22 Dual Receiver Digital Wireless Systems, including handheld or lavalier/headworn mic transmitters. Please read the instructions for your system completely before operating unit.

This manual will first list the features of the DW-11/DW-22 systems and then will take you step by step to show you 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 your new system. Each section will give you detailed operating instructions. Also included in this manual are system specifications and servicing information.

SYSTEM COMPONENTS

All System Includes

- Receiver
- Transmitter(s)
- Power Supply
- Owner's Manual

SYSTEM FEATURES

DW-11 SINGLE AND DW-22 DUAL CHANNEL RECEIVERS

- User Friendly. Fixed channel and frequency make operation very simple. Just turn the system on and it's set to go!
- State-of-the-art, professional 24-bit digital conversion technology for exceptional audio clarity with transparent frequency response across the entire audible range (20Hz to 20,000Hz). The truest possible sound with undetectably low latency.
- Clear Signal operation in 900 MHz Band. Completely free from TV interference.
- Sophisticated RF filtering for optimal simultaneous operation of multiple systems in the same location.
- Reliable long range operation. Digital transmission virtually eliminates interference from nearby obstacles and noise from your audio. Extended operating range up to 300 feet line-of-sight.
- Sleek, rugged ABS tabletop housing for long-term durability.
- Front panel AF / RF LED displays for monitoring incoming signal strength and audio level, backlit panel display showing pre-selected channel and operating frequency, Power On/Off Switch, and volume Controls (**DW-22** separate Ch A and Ch B controls)
- Back panel fixed balanced XLR MIC level audio out (**DW-22** dual XLR outs), and adjustable ¼" LINE level out (**DW-22** single MIXED SUM adjustable line out), DC input jack, and rotatable, swivel attached antenna (**DW-22** dual antennas).
- Externally powered with included universal voltages 110V-220V AC / 13.5 VDC regulated 400mA adapter.
- Optional RMT-1KUD available for rack mounting single or dual **DW-11**/**DW-22** receivers.

TRANSMITTERS

- Choice of **DIGITAL HT™** Handheld Microphone, and **DIGITAL LT™** Bodypack Transmitter for operation with lavalier or headworn mics.
- **Digital HT™** features the unidirectional neodymium dynamic cartridge for optimum true sound, maximum feedback rejection and minimal handling noise. Sleek rugged housing, battery status LED display, On /Off switch and internal antenna for optimum aesthetics.
- **Digital LT™** features compact housing, removable belt clip, durable attached external antenna, unique locking 3.5mm mini jack for connecting lavalier or headworn mics, and On/ Standby (Mute) / Off switch which provides convenient audio muting with the transmitter on
- Convenient, economical operation with (2)AA alkaline batteries.

RECEIVER OPERATION

1. **Rack mounting The Receivers**

There are 2 options available for rack mounting the **DW-11/DW-22** receivers: singly or side-by-side with another **DW-11/DW-22** Series receiver. A single **DW-11** or dual **DW-22** receiver can be rack mounted with the optional RMT-1KUD rack tray.

[Note: Do not mount the receiver in a rack directly above an amplifier or other source of high heat – this could degrade the performance of the DW-11/DC-22. Always ensure adequate airflow and heat dissipation in any rack configuration.]

2. **Powering The Receivers**

Plug the AC/DC ADAPTER provided into the DC INPUT JACK (9) on the back of the receiver. Then plug the power supply into an AC outlet.

[Note: Any 13.5V DC regulated source with 400mA capability can also be used.]

Press the POWER SWITCH (2) once to turn on the receiver. The POWER ON LED (1) will now light and the receiver is operational.

3. **Antennas**

The **DW-11/ DW-22** receivers are supplied with ATTACHED ANTENNAS (10). As these antennas are rear mounted, position them in the rack so the antennas can be adjusted fully to obtain maximum range. Optimal antenna position is 45 degrees from the receiver (at 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 at all times whenever possible.

4. **Connecting the Audio Output**

The **DW-11 and DW-22** receivers provide both a fixed Mic level BALANCED XLR (7) AUDIO OUTPUT and an adjustable line level UNBALANCED LINE/MIX 1/4" jack (8) AUDIO OUTPUT. Both ¼" and XLR outputs can be used at the same time. VOLUME CONTROL (6) is for UNBALANCED LINE/MIX 1/4" jack (8) AUDIO OUTPUT only (p 6).

5. **Microphone Connection**

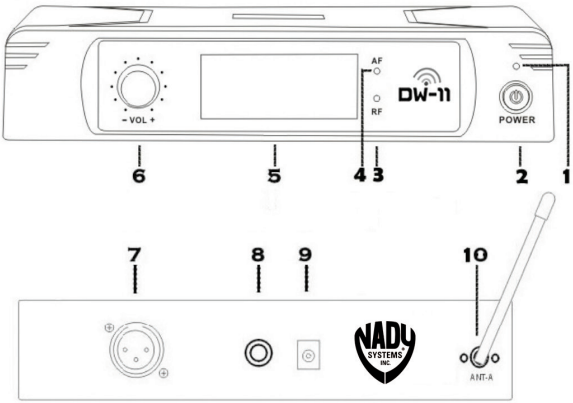
Either the BALANCED XLR (7) or the UNBALANCED LINE/MIX OUT1/4" (8) can be used. The BALANCED XLR (7) audio output is set at a non-adjustable microphone level, similar to hardwired Mic levels. Adjust volume level from your amplifier or mixing board. Plug an XLR connector into the XLR output socket on the rear of the unit and plug the other end into your amplifier or mixing board. Make sure the phantom power on your mixing board is turned off and the volume is turned down when making connections. To use the 1/4" UNBALANCED LINE/MIX OUT(8) socket, follow the instructions for connecting (above), except start the receiver volume at 1/2 MAX and adjust until the volume level is optimal. If the volume control is set too high, you may overload your mixer or amp.

[Note: As when making any connection, make sure the amplifier or mixing board volume is at the minimum level before plugging in the receiver to avoid possible sound system damage.]

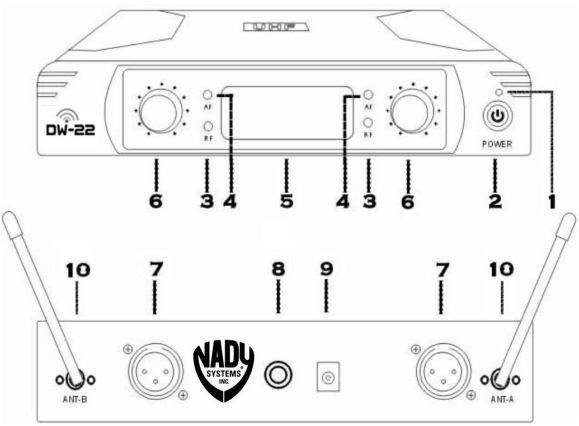
6. **LED Display**

The DW-11/DW-22 receivers are equipped with AF LED indicator (4) showing the audio present from the transmitter. If this LED lights continuously, decrease the volume to the Mic or overload distortion may result. The RF LED DISPLAY (3) showing the TRANSMITTERS(TX) is on. When it is lit up, the TX is in usable range. If not lit up or flickering, either the TX is not on or it is out of range. Move the TX closer to re-establish the connection.

DW-11 and DW-22 Receiver Front and Back Label



DW-22 Front/Back



1. Power On Indicator
2. Power On/Off Switch
3. RF On Indicator
4. AF On Indicator
5. Frequency Label Screen
6. Volume Control
7. Balanced XLR Out
8. Unbalanced ¼" LINE/MIX Out
9. DC Input Jack
10. Antenna

DIGITAL HT™ HANDHELD MICROPHONE TRANSMITTER

HANDHELD OPERATION

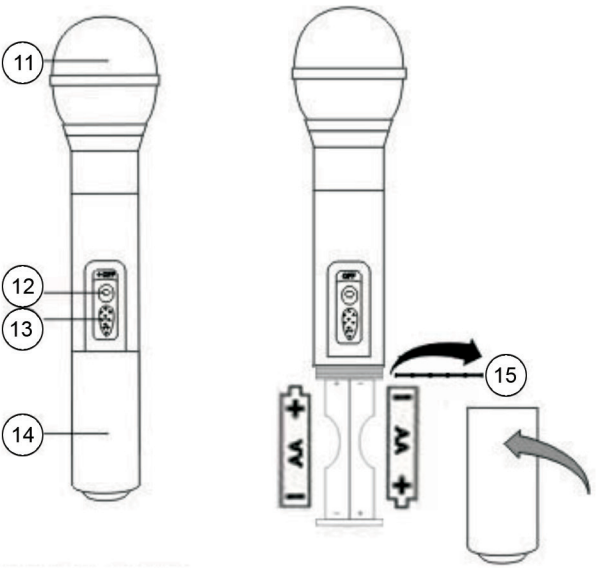
1. Unscrew the BATTERY COMPARTMENT COVER (14) and insert 2 fresh AA ALKALINE BATTERIES into the BATTERY COMPARTMENT(15), observing the correct polarity as marked. Screw the cover back on to the microphone. Fresh alkaline batteries can last up to 11 hours in use, but in order to ensure optimum performance, it is recommended that you replace the batteries after every 8-10 hours of use.

2. Turn on the **DIGITAL HT™** by sliding the POWER SWITCH (13) to turn on the TX first. The RF LED (3) on the DW-11/DW-22 receivers should now be lit, indicating a received signal from the transmitter. The BATTERY INDICATOR LED (12) will give a single quick flash, indicating usable battery strength. In the case of a dead or low battery, it will either not go on at all or will stay on continuously, indicating that the batteries should be replaced with fresh ones. To preserve battery life, turn the transmitter off when not in use.

3. The microphone is now ready to use. Adjust the volume of the receiver per the Audio Output Microphone Connection section above.

[Note: Observe care in selecting P.A. volume, transmitter location and speaker placement so that acoustic feedback (howling or screeching) is avoided.]

DIGITAL HT™



11. Windscreen
12. Battery Good/Low LED Indicator
13. Power On/Off
14. Battery Cover
15. Battery Compartment / 2 AA Batteries LT

DIGITAL LT/HM™ BODYPACK TRANSMITTER

BODYPACK OPERATION

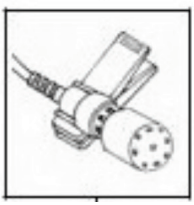
1. Open the hinged BATTERY DOOR (22) and insert 2 fresh AA ALKALINE BATTERIES into the BATTERY COMPARTMENT (21), observing the correct polarity. Fresh alkaline batteries can last up to 11 hours in use, but in order to ensure optimum performance, it is recommended that the batteries be replaced after 8-10 hours of use.

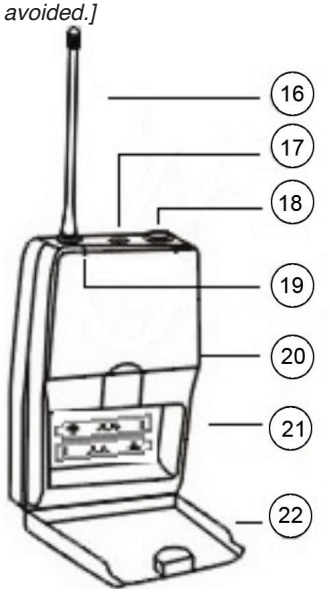
2. Turn on the DIGITAL LT™ by sliding the POWER SWITCH (17) to audio MUTE position first. The RX RF LED INDICATOR (19) will turn on. The BATTERY INDICATOR LED (19) will give a single quick flash, indicating usable battery strength. In the case of a dead or low battery, it will either not go on at all or will stay on continuously, indicating that the batteries should be replaced with fresh ones. To preserve battery life, turn the transmitter off when not in use.

3. The microphone is now ready to use. When ready to speak, slide the audio POWER SWITCH (17) to the ON position. The RF LED (19) on the DW-11/DW-22 receivers should now be lit, indicating a received signal from the transmitter. Adjust the volume of the receiver per the Audio Output Microphone Connection section above.

[Note: Observe care in selecting P.A. volume, transmitter location and speaker placement so that acoustic feedback (howling or screeching) is avoided.]

DIGITAL LT/HM™





16. Antenna	17. Power On/Off, Audio Mute
18. Mic Input	19. Battery Good/Low and RF LED Indicator
20. Belt Clip	21. Battery Compartment
22. Battery Cover	23. LT/HM Mics

4. The DIGITAL LT™ is provided with a 3.5 mm LOCKING JACK (18) for connecting the audio input selected. Connect either HEADWORN MIC or LAVALIER MIC CORD (23) as desired, according to the model selected.

[Note: Use only the input selected or the audio will not be optimal–a muddy or distorted sound may result. To secure the connection, turn the slip ring on the plug clockwise to thread it on the jack. To unplug, reverse the process.]
Slip the transmitter into a pocket or BELT CLIP (20) on to your clothes.

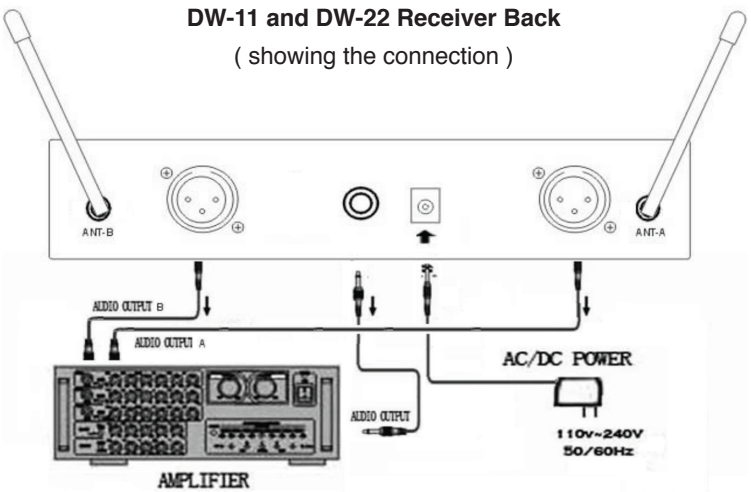
5. **Microphone Use** (with either a Lavalier or Headworn microphone)
Secure the connection from the LAVALIER or HEADWORN MIC CORD(23) by turning the slip ring on the plug into the transmitter clockwise to thread it onto the jack. To unplug, reverse the process. To use the Lavalier Mic, attach it at chest level. Do not place it too close to the mouth–a distance of about six inches usually works best. To use the head worn Mic, place it on the head and adjust the boom so that the Mic is about one inch to the side of the front of the mouth.

[Note: Observe care in selecting P.A. volume, transmitter location and speaker placement so that acoustic feedback (howling and screeching) is avoided. Also note the pickup pattern characteristics 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. 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 models that are used close to the mouth.]

6. **Sample Connections**: Connect ¼" output for A and B Channels to Mixer inputs. Use the volume to set for optimum output. VOLUME CONTROL (6) is for LINE/MIX 1/4" jack (8) AUDIO OUTPUT only. For separate control, use XLR outputs to each Mixer input, control the level from the Mixer. Power adapter connection as shown in the picture below.

DW-11 and DW-22 Receiver Back

(showing the connection)



SPECIFICATIONS

RECEIVER OVERALL SYSTEM PERFORMANCE

Frequency Response:	20Hz – 20,000Hz +/-3dB
Dynamic Range:	120dB (A-weighted)
Total Harmonic Distortion:	<0.1%
Latency:	3mSec (48 kHz Sample Rate)
RF Carrier Frequency Range:	Selected frequencies between 902 and 951MHz
Frequency Stability:	+/- 20PPM, PLL controlled
Modulation:	Digital QPSK
Operating Range:	Up to 300 ft. typical (depending on site conditions); optimum line-of- sight

DW-11/DW-22 RECEIVERS

Reception :	External 7.25" (18.5cm) Antenna Attached (DW-22 – dual antennas)
Receiver Sensitivity :	-94dBm
Controls :	Power ON/OFF, Volume Control
Connectors :	1/4" (6.35 mm) Unbalanced phone jack (360 mV/ no load) XLR Balanced output (+/-12 mV/600 Ohm load)(2x for DW-22)
LED Indicators :	Power ON, RF/AF LEDs
Unwanted Signal Rejection :	60dB image and spurious
Power Requirements :	DC 13.5V Regulated @ 400mA
DC input :	2.1mm jack
Weight and Dimensions :	**DW-11:** 0.75lbs (340g) 8" X 6" X 1.75" (203 X 152 X 44mm) **DW-22:** 0.8lbs (363g) 8" X 6" X 1.75" (203 X 152 X 44mm)

DIGITAL HT™/DIGITAL LT™ TRANSMITTERS

RF Power Out :	+13dBm, (50mW maximum allowed by FCC)
RF Spurious Emissions :	< –50 dB
Audio Inputs :	Digital HT™ Integral neodymium dynamic cartridge
Digital LT™ Bodypack :	1/8" (3.5mm) locking mini-jack, for headworn or lavalier Mic

CONTROLS

HT/LT :	Power On/Off, (LT) Audio Mute
LED Indicator :	Unit on (single flash), Low Battery Alert (red)
Battery Type :	2 AA Alkaline
Battery Life :	Up to 11 Hours
Weight and Dimensions :	**Digital HT™:** 0.6lbs (272g) / 9.25"(L) X 2"(dia.) **Digital LT™:** 0.15lbs (68g)/ 2.5" X 4.25" X 0.5" (64 X 108 X 13mm)

OPTIONAL ACCESSORIES

RMT-1KUD rack tray for rackmounting either one or two DW-11/DW-22 receivers.

Audio Feedback
Avoid acoustic feedback (howling or screeching) by taking care in selecting P.A. volume, transmitter location and speaker placement.

[Note: the pickup pattern characteristics of the microphone selected: Unidirectional microphones are more resistant to feedback. However, they pick up sound sources best that are directly in front of the microphone. Mics that are farther from the sound source (such as a lavalier) require more acoustic gain and thus are also more prone to feedback than close-source Mics.]

No Or Low Audio
If you are not getting audio through the system, carefully re-check all setups. Especially note that the receiver and transmitter must be set to operate on the same RF channel.
Also confirm that the BODYPACK transmitter's POWER SWITCH (17) is not in the MUTE/STBY position. The receiver's UNBALANCED MIX OUT (8) is adjustable so make sure the VOLUME CONTROL (6) is set properly.

RF Interference and Finding Open Channels
The FCC mandates that the following information be provided to all users of this equipment:

CONSUMER ALERT

Most users do not need a license to operate this wireless microphone system. Nevertheless, operating this microphone system without a license is subject to certain restrictions: the system may not cause harmful interference; it must operate at a low power level (not in excess of 50mW); and it has no protection from interference received from any other device. Purchasers should also be aware that the FCC is currently evaluating use of wireless microphone systems, and these rules are subject to change.

For more information, call the FCC at **1-888-CALL-FCC**
(TTY: 1-888-TELL-FCC)
or visit : **www.fcc.gov/cgb/consumerfacts/wirelessmic_factsheet.html**

Please note that wireless frequencies are shared with other radio services. According to FCC regulations, wireless microphone operations are unprotected from interference from other licensed operations in the band. If any interference is received by any Government or non-government operation, the wireless microphone must cease operation or change frequencies. The above statement is valid only for use in the U.S.A.

If you encounter slight receiving interference when the transmitter is far from the receiver (from other than an operating TV station on the same frequency), it can often be overcome by relocating the receiver to a different place, away from RF sources, e.g., TV, radio, computer, electric motors.

MISCELLANEOUS USEFUL TIPS

- The receiver antennas should be kept away from any metal surfaces whenever possible as they can reflect away or shield the incoming RF signal.

- If the receiver's volume control is set too high, it may overdrive the input of the attached audio mixer, causing distortion. Conversely, if the output is set too low, the overall signal-to-noise ratio of the system may be reduced, causing noticeable hiss. If such noise occurs, adjust the output level of the receiver so that highest sound pressure level going into the microphone transmitter causes no input overload in the mixer, but permits the mixer level control to operate in the normal range (not too high and not too low). This provides the optimal signal-to-noise for the entire system.

- Before inserting the batteries, ensure that they are being inserted with the correct polarity.

- Before operation, confirm that the receiver and associated transmitter are tuned to the same frequency group and channel number.

- Use only new AA alkaline or fully recharged NiMH batteries. Do not use "general purpose" carbon batteries. When batteries are weak, replace all the batteries at the same time. Do not mix new and old batteries.

- Position the receiver so that it has the least possible obstructions between it and the transmitter. Line-of-sight is best!

- During operation, the transmitter and the receiver should be as close as possible to each other for optimum results but never closer than 3 ft. (1 m) as that may overload the receiver's input circuitry and cause feedback and interference.

- If rackmounting the receiver, keep away from heat sources such as amplifiers by allowing enough space between them for adequate ventilation. Also, position the receiver in the rack so the antennas can be optimally adjusted as described above.

- For the best operation, the receiver should be placed at least 3 ft. (1 m) above the ground and 3 ft. (1 m) away from a wall or metal surface. The transmitter should also be at least 3 ft. (1 m) from the receiver. Keep antennas away from noise sources such as motors, automobiles, neon lights, signal processors, computers and large metal objects.

- A receiver cannot receive signals from two or more transmitters simultaneously.

- Turn the transmitter off when it is not in use. For longest life, remove the batteries if the unit is not to be used for a long period as the transmitters draw a tiny residual current to maintain the programmed settings even when turned off. Also, since batteries installed for a long time can sometimes corrode and/or leak, causing damage, it is generally recommended that batteries be removed whenever the transmitters are not being used.

WARRANTY

Nady Systems, Inc. warrants to the original consumer/purchaser that the 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. Please do not return your Nady product to the store where it was purchased as Nady Systems handles your warranty service directly. Communication with our Service Department is the most efficient means of servicing your unit and we are dedicated to keeping you a satisfied customer.

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/CIRCUMSTANCES 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 Customer Service Department at (510) 652-2411 for a Return Authorization (RA) number. Make sure the RA number is clearly marked on the outside of your package.
[Note: if an RA number is not included, our shipping department cannot accept your package.]

2) Send the unit back to Nady Systems, 870 Harbour Way South, Richmond, CA 94804, 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.

SERVICE

In the U.S. If you are experiencing operational problems with your system, please feel free to contact the Nady Service Department via telephone at **(510) 652-2411** or e-mail to **service@nady.com** to obtain 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, INC., Service Department, 870 Harbour Way South, Richmond, CA USA 94804**. Include a brief description of the problems you are experiencing. For service of a unit underwarranty, please follow the instructions in the following section.

The warranty card enclosed with this system contains additional valuable warranty and service information. Keep it in a safe place for future possible reference. Do not attempt to service this unit yourself as it will void the warranty.

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

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

Address : 870 Harbour Way South, Richmond California USA 94804
Phone : 510-652-2411 | Fax : 510 -652-5075