System Installation and Operating Instructions

System Setup

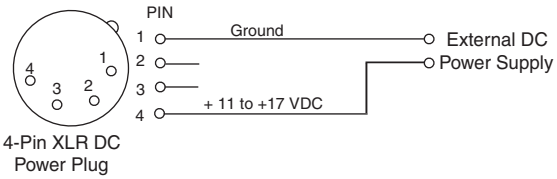
1) Locate a suitable operating location where the receiver will not be subjected to extreme temperature variations and possible bumps and drops. Try to route all wiring so it will not cross walkways or aisles.

2) Connect the power. For AC operation, connect the female end of the power cord to the AC input jack on the rear panel and plug the other end into a suitable electrical outlet.

AC Power Input Jack
90 to 240 VAC, 50-60 Hz

If external DC power is desired, a power cord needs to be fabricated. Use a standard 4-pin female XLR connector for the receiver end and wire it according to the diagram below (Pin 4 is positive and Pin 1 is ground).

External Power Connector 11-17 VDC



3) Connect the antennas. You can use either two remote antennas or two whip antennas with 90-degree connectors to operate the UDR700; however, the operating range may be less with the whip antennas than with the remote antennas. When using remote antennas, for best performance place them at least three feet from each other and as high as possible with a direct line of sight path to the transmitter.

Antenna Input BNC Connectors

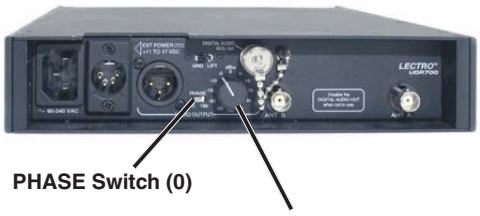
4) Preset the UDR700 controls as follows:

Audio Monitor Level Control (front panel) to minimum (CCW)

PHASE Switch (rear panel) to “0”

Analog Audio Output Control (rear panel) fully CCW (-40 dBu)

Audio Monitor Level (Counterclockwise)



PHASE Switch (0)

Analog Audio Output Control

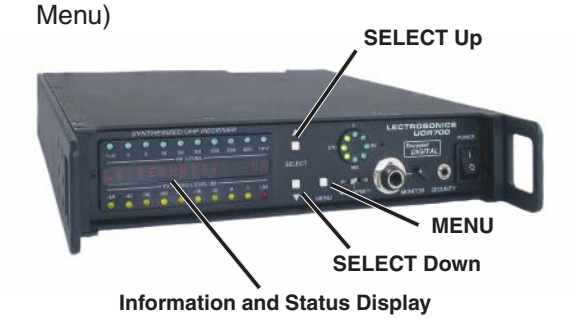
5) Connect the Audio Output XLR jack to your mixer input. (Pins 2 and 3 of the XLR jack are HI and LO and can be reversed with the Phase switch, Pin 1 is common.)

Audio Output XLR jack

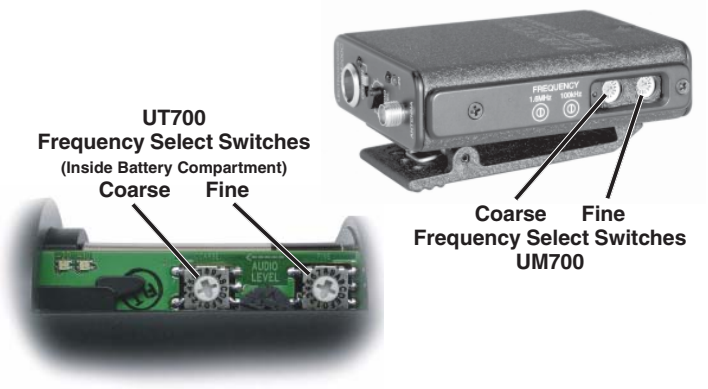
6) Set the front panel POWER switch to On and observe the POWER UP SEQUENCE. (See Information and Status Display Menus and Functions.

Warning: Do not turn on the associated transmitter(s).

7) When the Main Tuning Menu appears observe the RF Level Indicator LEDs. (If the Main Tuning Menu is not displayed, press and release the MENU button to step through the menu selections until it is displayed.) If any of the RF Level Indicator LEDs glow or blink, use the SELECT Up or Down button to locate a clear channel (no RF activity) from one of the current factory preset frequency group. If a clear channel is not available using one of the factory preset frequencies, press and hold the MENU button, then press the SELECT Up or Down button to tune across the entire 25.5 MHz frequency block (in 100 kHz steps) to locate one. (See Information and Status Display Menus and Functions, Main Tuning Menu and Group Tuning Menu)



8) If necessary, install a fresh battery in the transmitter. (See UM700 Battery Installation and UT700 Battery Installation.) Set the Frequency Select Switches on the associated transmitter to match those identified in the receiver's Main or Group Tuning Menus (the two rightmost characters on the Information and Status Display).



9) Determine the security level required. (See The 700 Series Encryption System.)

10) Turn the UDR700 Off, then press and hold the SELECT Down button while turning the UDR700 back on. The display will show the current security level. The default is Level 1.

11) Use the SELECT Up or Down buttons to choose a new security level, then press the MENU button to finalize the security level selection process. The Information and Status Display displays a message indicating the level of security (Level 1, 2 or 3).

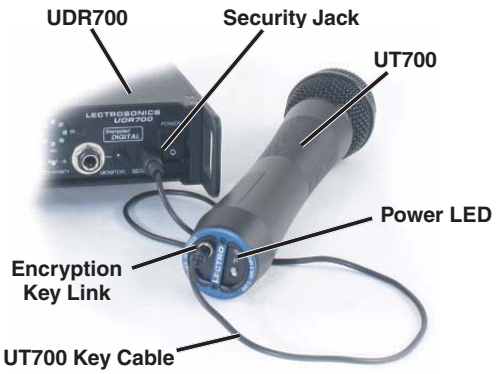
Note: Changing security levels requires that a new key be sent to the transmitter before the system will operate. (See Changing Security Level and Setting or Resetting Encryption Key.)

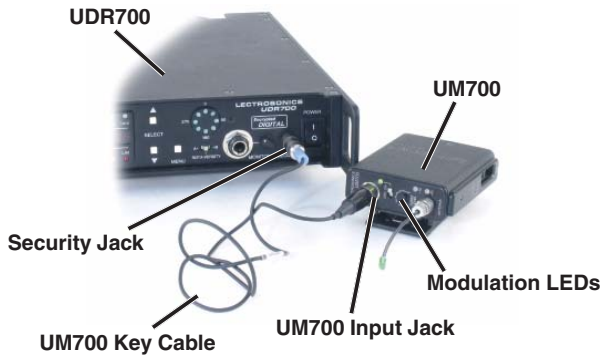
Warning: In Security Level 3, both the transmitter and receiver must be turned on and set to the same operating frequency prior to setting the Encryption Key.

12) Press the MENU button to enter the Key Generation Menu. "MAKE NEW KEY?" will be displayed in the Information and Status Display with an "Up" arrow to the message's right. (See Information and Status Display, Menus and Functions, Key Generation Menu.)

13) Press the SELECT Up button and follow the directions on the Information and Status Display. Eventually the prompt "NEW KEY TO TX ^" is displayed.

15) Connect the appropriate KEY CABLE Encryption Cable between the transmitter and the UDR700 and turn on the transmitter.





Note: Each transmitter uses a different Encryption Cable. (See Encryption Key Cables.)

16) Press the SELECT Up button on the UDR700 to send the encryption key to the transmitter. Depending on the transmitter, the Power LED on the UT700 or the two Modulation LEDs on the UM700 blink to confirm receipt of the new key.

Level 1: 1 blink

Level 2: 2 blinks

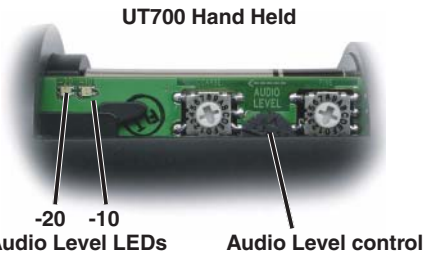
Level 3: 3 blinks

Note**:** In Security Levels 1 and 2, you may program as many transmitters as you like to match the receiver. Repeat steps 15 and 16 for each transmitter. This will transmit the same encryption key to each transmitter; however, once you leave this prompt, this particular encryption key can never again be sent out of the Security jack to a transmitter. A new encryption key will have to be created. In Security Level 3, each encryption key may be sent to only one transmitter.

17) Depending on the unit, hold the microphone for the belt pack transmitter or hold the hand held transmitter in the same position that it will be used in actual operation.

18) While speaking or singing at the same voice level that will actually be used, observe the Audio Level LEDs. Adjust the Audio Level control until the -20 LED occasional blinks red and the -10 LED glows steady green.

Signal Level	-20 LED	-10 LED
Less than -20 dB	Off	Off
-20 dB to -10 dB	Green	Off
-10 dB to +0 dB	Green	Green
+0 dB to +10 dB	Red	Green
Greater than +10 db	Red	Red



Note: Different voices will usually require different settings of the AUDIO LEVEL control, so check this adjustment as each new person uses the system. If several different people will be using the transmitter and there is not time to make the adjustment for each individual, adjust it for the loudest voice.

Note: In the UT700, if you find that the Audio Level control is set to minimum and the -20 LED still glows green, then adjust the preamp level control located under the microphone wind screen. (See VARIMIC™ CONTROLS.) If you adjust the preamp level control, you will need to repeat steps 19 and 20.

19) If you are using the UT700 hand held microphone, replace the Battery Compartment Cover.

20) Once the transmitter gain has been adjusted, the audio levels for the rest of the system can be set. Set the UDR700 Analog Audio Output Control to midrange.

Notes: The transmitter Audio Level Control should not be used to control the volume of your sound system or recorder levels. This gain adjustment matches the transmitter gain with the user's voice level and microphone positioning.

Note: The UDR700 receiver needs at least 5 uV of RF signal to begin operating - this is the approximate squelch threshold. Between 5 uV and 10 uV, reception will be marginal and brief gaps in the audio may occur if the receiver squelches. Check to see that at least the lowest four RF LEVEL LEDs stay lit when the transmitter is turned on.

21) Operate the wireless system and fine tune the receiver analog audio output level as required by your equipment. The input levels on different equipment vary. Try different settings of the Analog Audio Output Control to listen to the results. If the output of the receiver is too high, you may hear distortion or a loss of the natural dynamics of the audio signal. If the output is too low, you may hear steady noise (hiss) along with the audio.

Note: The -40 setting is approximately equal to 10 mV, the 0 position will give 0.775 VRMS, and the +15 setting will allow up to 4.4 VRMS when the transmitter is fully modulated. The correct setting will depend on the requirements of your sound or recording system.

22) If necessary, perform a walk test to map the effective operating range for the transmitter(s) prior to the beginning of the function.

Note: In Security Level 2, if you wander out of range for more than 10 seconds, the transmitter must be turned off, then on again to resynchronize with the receiver. In Security Level 3, if you wander out of range for more than 10 seconds, a new encryption key will have to be generated for the system to operate.

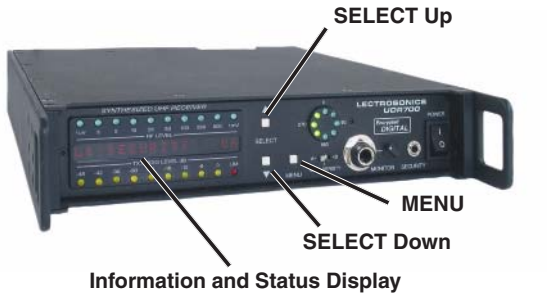
Changing the Security Level

1) Determine the new security level. (See The 700 Series Encryption System.)

2) Press and hold the SELECT Down button while powering up the receiver. The display will show the current security level. (Default is Level 1.)

3) Use the SELECT Up or Down buttons to choose a new security level, then press the MENU button to finalize the security level selection process. The Information and Status Display will then display a message indicating the level of security (Level 1, 2 or 3). Pressing the MENU button again enters the key generation process.

Note: Changing security levels requires that a new key be sent to the transmitter(s) before the system will operate.



Setting the Encryption Key

Note: In Security Levels 1 and 2, any number of transmitters can receive the same encryption key. In Security Level 3, only one transmitter may receive the encryption key. (See The 700 Series Encryption System.)

1) To set a new encryption key, press the MENU button to scroll through the menus until the SECURITY MENU is displayed in the Information and Status Display. Press MENU once more to enter the Key Generation Menu. “MAKE NEW KEY?” will be displayed in the Information and Status Display with an “Up” arrow to the message’s right.

2) Press the SELECT Up button to create a new encryption key (or press MENU to cancel creating a new key and return to the MAIN TUNING MENU display). Follow the directions on the Information and Status Display until the prompt “NEW KEY TO TX ^” is displayed.

3) Connect the appropriate Key Cable between the transmitter and the UDR700, then turn on the transmitter.

Note: Each transmitter uses a different Key Cable. (See Encryption Key Cables.)

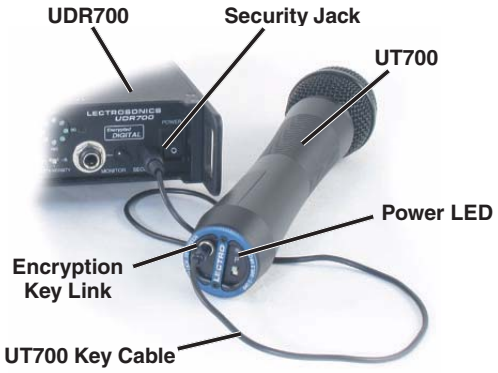
4) Press the SELECT Up button on the UDR700 to send the encryption key to the transmitter. Depending on the transmitter, the Power LED on the UT700 or the two Modulation LEDs on the UM700 blink to confirm receipt of the new key.

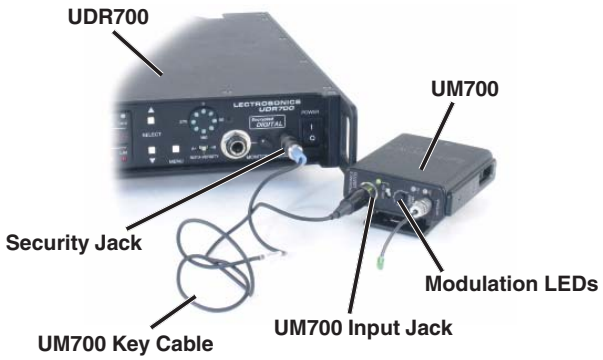
Level 1: 1 blink

Level 2: 2 blinks

Level 3: 3 blinks

Note: In Security Levels 1 and 2, you may program as many transmitters as you like to match the receiver. Repeat steps 3 and 4 for each transmitter. This will transmit the same encryption key to each transmitter; however, once you leave this prompt, this particular encryption key can never again be sent out of the Security jack to a transmitter. A new encryption key will have to be created. In Security Level 3, each encryption key may be sent to only one transmitter.





Protecting the Encryption Key

The encryption key is never displayed, and once a key transfer session is complete, the existing key can never again be transferred out the receiver's security port. However, the key is stored inside the transmitter and the receiver, so you should treat the equipment as you would a key, storing it in a safe place for as long as the key is important.

Keep in mind that old keys could be used to decrypt old transmissions, if someone had the means and desire to make such recordings. Also, overwriting an old key with a new one does not necessarily place the old key beyond the reach of someone with unlimited resources if they can obtain your equipment. Amazing feats of data recovery from overwritten EEPROM chips have been demonstrated.

For maximum security, it is recommended that you set a new key often, ideally before and after each use of the system, and that you always store the equipment in a physically secure location.

Note that in Security Level 3, the equipment itself enforces the most important part of this policy, namely that no key shall ever be used more than once.

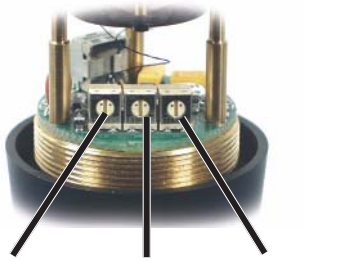
UT700 Vari-Mic™ Controls

Caution: Due to the high RF levels surrounding the transmitter, the sound of the Varimic capsule may be temporarily affected if the metal windscreen is not in place. Always make the final decision about sound balance and quality with the windscreen in place.

The VariMic™ head includes adjustments for the microphone element's Bass, Midrange and Treble response. There is also an attenuation adjustment to provide up to 15 dB of additional headroom if needed. These controls can be accessed by removing the windscreen. To remove the windscreen, grasp the body of the transmitter in one hand and the windscreen in the other hand. Unscrew the windscreen counterclockwise and then carefully slide the windscreen past the mic element.

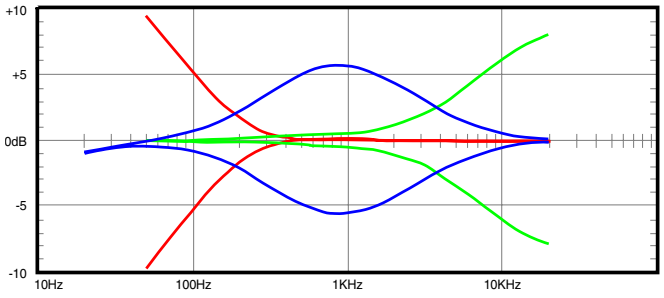
Bass / Mid / Treble (LO / MID / HI)

The bass and treble controls will boost/cut by up to approximately 8 dB while the Mid control will boost/cut up to about 6 dB. These controls operate as standard tone controls. Counterclockwise will reduce the response in that band and clockwise will provide a true boost.



- Set flat (as shown in illustration), the mic capsule has a very wide dynamic range and sounds a lot like a large competitor's top line condenser mic.
- Bass cut gives a dry but highly intelligible sound. Crisp.
- Bass boost "fattens" the sound but is very listenable. Does not get midbass boomy.
- Midrange cut sounds very smooth, very sweet. Almost like a "crooner" quality.
- Midrange boost is likely to be useful in a system that is midrange shy.
- Treble cut has a "mellow" sound. The capsule has a solid high end so a little cut does not ruin the response.
- Treble boost might be fine on some sound systems. The sound doesn't get harsh (showing that the response was smooth) but sibilants are a little too much. Should be used in moderation.

UT200 Bass/Midrange/Treble Boost/Cut



Preamp Level Control

The VariMic™ head includes an attenuator to provide an additional 15 dB of headroom when needed. The attenuator should only be used when the normal Audio Level Control is already turned down as far as it will go and the signal through the mic is still too hot. The attenuator control is a 16-position switch marked 0 through F. "F" is minimum attenuation or the highest signal level. "0" is maximum attenuation or the lowest signal level. For the maximum amount of headroom, set the switch to "0."

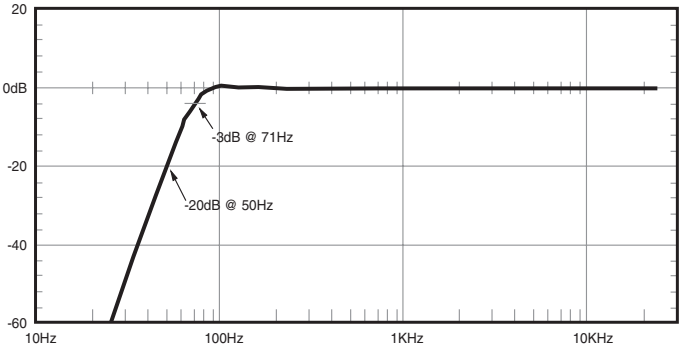
Preamp Level Control

Note: The attenuator should not be used as a level control. The Audio Level control inside the battery compartment is the main level control. Adjust the attenuator only when the Audio Level control is turned completely down and more headroom is still needed. Be sure to set the attenuator back to its original setting (minimum attenuation or "F") for normal operation.

Bass Filter

In addition to the tone controls, the UT700 also has a built in bass filter. This filter is fixed and cannot be adjusted or defeated. Low frequency noise is more of a problem with wireless microphones than with conventional microphones. With a regular mic, low frequency wind noise, breath thumps or handling rumble can be filtered out at the control board before the noise causes problems with the following electronic circuits or speaker systems. But with a wireless microphone, the electronics that will be overdriven are right in the wireless microphone. Filtering at the control board is much too late. To solve this problem, the VariMic has a low frequency filter that is so sharp that it can remove low frequency noise without affecting any wanted vocals. It consists of a 36 dB per octave filter circuit to sharply remove low frequency noise below 75 Hz without affecting vocal fundamentals.

VariMic Low Frequency Roll-off Filter



5-Pin Input Jack Wiring (UM700)

The wiring diagrams shown in Wiring Hookups For Different Sources represent the basic wiring configurations necessary for the most common types of microphones and other audio inputs. Some microphones may require extra jumpers or a slight variation in the diagrams shown.

It's virtually impossible to keep completely up to date on changes that other manufacturers make to their products. It is possible that you may encounter a microphone that differs from those illustrated. If this occurs please visit our web site (http://www.lectrosonics.com) or call our toll-free number listed in the back of this manual for assistance. Our Service Department can answer your questions regarding microphone compatibility.

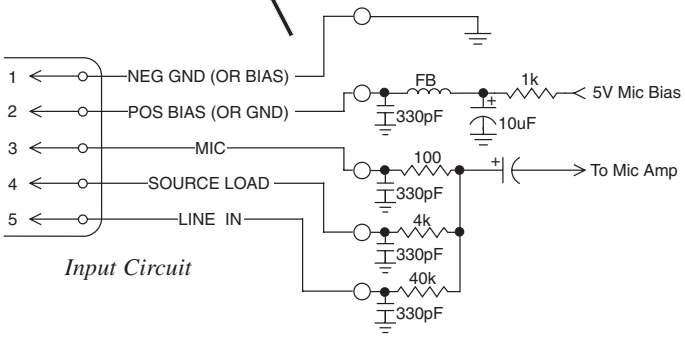
When used on a wireless transmitter, the microphone element is in the proximity of the RF coming from the transmitter. The nature of electret microphones makes them sensitive to RF, which can cause problems with the microphone/transmitter compatibility. If the electret microphone is not designed properly for use with wireless transmitters, it may be necessary to install a chip capacitor in the mic capsule or connector to block the RF from entering the electret capsule. (See RF Bypassing.)

PIN 1- Shield (ground) for positive biased electret lavaliere microphones. For the increasingly rare negative biased electret lavaliere microphones, it is the bias voltage source. It is also the shield (ground) for dynamic microphones and line level inputs.

PIN 2 - Shield (ground) for negative biased electret lavaliere microphones. Bias voltage source for positive biased electret lavaliere microphones.

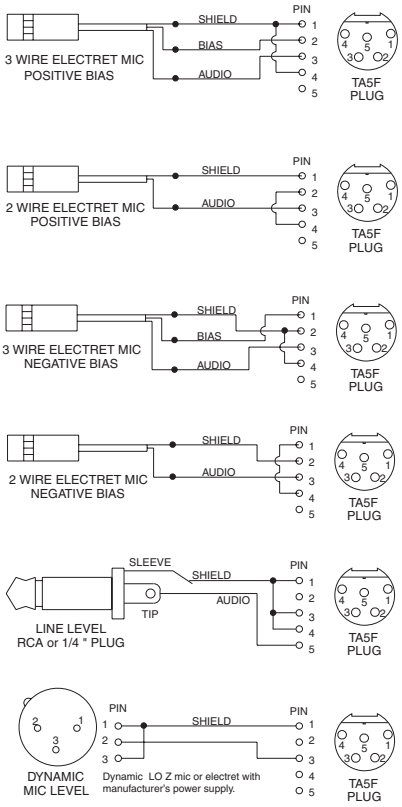
PIN 3 - Low impedance microphone level input for dynamic microphones. Also accepts hand-held electret microphones that have their own battery or power supply.

PIN 4 - 4 k Ohm source load for non-Lectrosonics electret microphones. Use in conjunction with other pins to provide attenuation of high level input signals.



Input Circuit

PIN 5 - 40 k high impedance, line level input for tape decks, mixer outputs, musical instruments, etc.



Wiring Hookups for Different Sources (UM700)

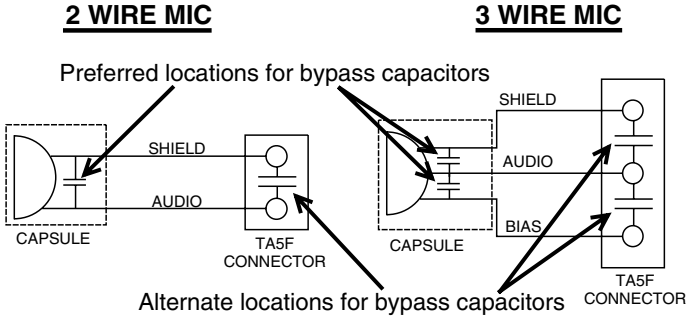
RF Bypassing (UM700)

Some mics require RF protection to keep the transmitter signal from affecting the capsule, even though the transmitter input circuitry is already RF bypassed (see 5-Pin Input Jack Wiring schematic diagram).

If the mic is wired as directed, and you are having difficulty with squealing, high noise, or poor frequency response, RF is likely to be the cause.

The best RF protection is accomplished by installing 330 pF bypass capacitors at the mic capsule. If this is not possible, or if you are still having problems, capacitors can be installed on the mic wires inside the TA5F connector housing.

The 330 pF capacitors are available from Lectrosonics.



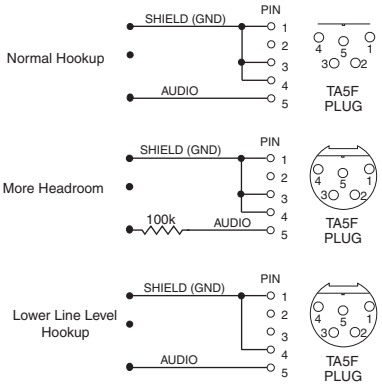
Please specify the part number for the desired lead style.

Leaded capacitors:	P/N 15117
Leadless capacitors:	P/N SCC330P

Note: The M150-7005P microphone is bypassed correctly for use with the UM700 Encrypted Digital Transmitter and is the recommended lavaliere microphone for the 700 Series wireless microphone system.

Line Level Signals (UM700)

The normal hookup for line level signals provides 40 dB of attenuation allowing signal levels up to 30 V to be applied without limiting. The normal hookup configuration can be modified for situations that require higher levels of headroom, or lower levels of attenuation.



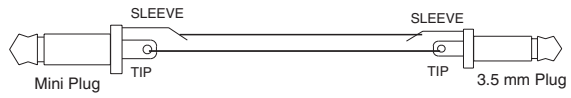
Normal hookup connects the Signal Hot (Audio) to pin 5, Signal Gnd (Shield) to pin 1, and both pins 3 and 4 jumped to pin 1.

If even more headroom is required, insert a 100 k resistor in series with pin 5 (Audio). Put this resistor inside the TA5F connector to minimize noise pickup.

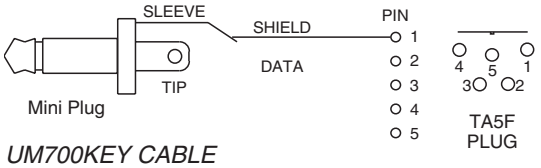
For situations where lower than normal line levels (less than 1 V) are expected, use the Lower Line Level Hook Up: Signal Hot (Audio) to pin 5, Signal Gnd (Shield) to pin 1, and pin 4 jumpered to pin 1. This configuration provides 20 dB attenuation allowing signal levels up to 3 V to be applied without limiting.

Encryption Key Cables

Each digitally encrypted transmitter uses a different encryption key cable. The configuration of these cables is listed below.



UT700KEY CABLE



UM700KEY CABLE

Troubleshooting

This manual applies only to UDR700 version 3.0/3.0 and higher.

Power Problems

UDR700

Display not lit or dimly lit	Power cord between main power supply and UDR700 disconnected or defective. External power supply disconnected, defective or inadequate. The External DC power input is protected by an auto-reset polyfuse. If external DC power is used, disconnect External DC power source and wait about 10 seconds for the fuse to reset, then reconnect power source. Main power supply defective.

UM700

Power LED does not glow when transmitter Power ON/OFF Switch set to ON	Battery is dead, or too low to be used. Battery is inserted backwards.
No Modulation LEDs	Battery dead or in backwards. Check Power LED. Audio Level Control turned all the way down. Mic capsule is damaged or malfunctioning. Mic cable damaged or mis-wired.

UT700

Power LED does not glow when transmitter Power On/Off Switch set to On	Battery is inserted backwards. Battery is dead, or too low to be used.
No Modulation LEDs	Battery dead or in backwards. Check Power LED. Audio Level Control turned all the way down. Mic capsule is damaged or malfunctioning. Contact the factory for repair.

RF Problems

Antenna Phase Combining Indicator on UDR700 has three LEDs glowing but never moves	The ROTA-VERSITY switch is set to the A or B position (using only one antenna) instead of the normal, center position (using both antennas). An antenna may be disconnected, have a bad connector or defective antenna cable.
No LEDs glow on Receiver RF Level Indicator	Receiver not turned on. Transmitter not turned on, or battery is dead. A receiver antenna may be disconnected, have a bad connector or defective cable. Transmitter and receiver not on same frequency. Transmitter antenna not connected. (UM700 only) Operating range is too great.
RF LEVEL is weak, but Antenna Phase Combining Indicator LEDs glow and move	An antenna may have bad connector and damaged cable. The antennas may need to be moved or reoriented. Improper length of UHF whip antenna, or wrong antenna. Transmitter is 100 kHz (one switch position) off from the receiver frequency.

Audio Problems

No audio output, audio leds blinking in sequence, LED display occasionally flashes "POWER TX OFF+ON" or "NEW KEY REQUIRED".	System is operating in security level 2 ("POWER TX OFF+ON") or 3 ("NEW KEY REQUIRED") and is not synchronized. Either the receiver did not pick up the start of the transmission or the transmitter was out of reception range for more than ten seconds. To correct this condition in security level 2, simply turn the transmitter off and on again. In level 3, it will be necessary to generate a new key. (For detailed instructions on generating a new key, see SETTING THE ENCRYPTION KEY.)
Receiver indicates RF but no audio, and problem is not encryption key	Ensure that the transmitter and receiver are set to the same frequency. Transmitter Audio Level Controls misadjusted.
No sound (or low sound level), receiver indicates proper audio modulation	Receiver output level set too low. Receiver output disconnected, audio output cable is defective or connector is wired incorrectly. Sound system or recorder input is turned down.
Receiver outputs an extremely loud, hissy or swishy sound	Encryption keys in transmitter and receiver do not match.
Poor signal to noise ratio	Transmitter gain set too low. Noise may not be in wireless system. Mute the audio signal at the transmitter and see if noise remains. If the noise remains, then turn the power off at the transmitter and see if it remains. If the noise is still present, then the problem is not in the transmitter. If noise is still present when the transmitter is turned off, try lowering the audio output level on the receiver rear panel and see if the noise lowers correspondingly. If the noise remains, the problem is not in the receiver. Receiver output does not match the input of the device it is feeding. Try increasing the output level of the receiver and lowering the input gain on the device the receiver is feeding.
Hiss and noise, audible dropouts	Transmitter gain (audio level) far too low. Receiver antenna missing or obstructed. Operating range too great. Receiver and Transmitter Frequency Select Switches not set to the same channel. RF interference. Reset both transmitter and receiver to a clear channel. Note: Resetting operating frequency will require resending encryption key in Security Level 3.
Distorted sound, motorboating	Transmitter gain (audio level) is too high. Check Modulation LEDs on transmitter and receiver as transmitter is being used. Receiver output may be mismatched with the sound system or recorder input. Excessive wind noise or breath “pops.” Reposition microphone, or use a larger windscreen (UT700), or both. RF feedback getting into VariMic mic capsule. Ensure that the windscreen is present and screwed down snugly. Transmitter is not set to same frequency as receiver. RF interference. Reset both transmitter and receiver to a clear channel.

Excessive feedback

Transmitter gain (audio level) too high. Check gain adjustment and/or reduce receiver output level.
Microphone too close to speaker system.
Move microphone closer to the user's mouth, and lower the sound system volume.

Microphone has a "whine" noise in the background which varies as the mic cable is moved. (UM700 specific)

The 700 Series modulation has an AM component which is more easily detected than FM by sensitive audio circuits. A microphone that works fine on an FM system might not work on a 700 series system. To protect the microphone from RF it is necessary to bypass it effectively at both ends of the cable. Ensure that bypass capacitors are installed inside the connector housing. If the mic is not sufficiently bypassed at the capsule, it may be necessary to use a different type of microphone. The UM700 transmitter is shipped with an M150 microphone which should work.

Note: The microphone plug wiring is different for the UM700 transmitter than for other Lectrosonics models. The M150 microphone supplied with the UM700 transmitter will not work with Lectrosonics 185/187 Series VHF belt-pack transmitters.

Specifications

Overall System

Latency:	2.5 ms
Operating principle:	Proprietary digital modulation with encryption
Modulation type:	Modified pi/4 DQPSK
Sample rate:	44.1 ksps
Audio coder:	Proprietary sub-band ADPCM
Encryption key length:	128 bit (300 trillion trillion trillion keys)
Bit rate:	220,500 bps including packet overhead
Operating frequencies: (depending upon local regulations)	Block 22 563.200 - 588.700 Block 23 588.800 - 607.900 and 614.100 - 614.300 Block 24 614.400 - 639.900 Block 25 640.000 - 665.500
Frequency selection:	256 frequencies in 100 kHz steps
Frequency Adjustment Range:	25.5 MHz
System Specifications	
Audio frequency response:	40 Hz to 20 kHz, +/- 1dB (with UM700 transmitter)
Audio dynamic range:	>100 dB before limiting
Audio Distortion:	0.05% THD + noise at 1 kHz

UDR700 Digital Receiver

Receiver Type:	Double conversion, superheterodyne, 244 MHz and 10.7 MHz
Frequency Stability:	+/- 0.002%
Front end selectivity:	>22 dB at +/- 4 MHz
Sensitivity:	5 uV for 100 dB S/N ratio
Squelch quieting:	> 125 dB
Image/Spurious rejection:	> 100 dB
Third order intercept:	+12 dBm
Diversity technique:	Rota-versity antenna combining
Antenna inputs:	Dual BNC 50 Ohm
Modulation Type:	Modified pi/4 DQPSK
Sample Rate:	44.1 ksps
Bit Rate:	220,500 bps
Audio Coder:	Proprietary sub-band ADPCM
Encryption Key Length:	128-bit (over 300 trillion, trillion, trillion keys)
Audio outputs:	Analog: -40 dBu to +15 dBu Digital: AES-3id
Monitor out:	Front panel 1/4" jack; 0 to 110 mV RMS.
Power Options:	90 to 240 VAC, 50/60 Hz, 10 Watts 11 to 17 VDC, 10 Watts
Weight:	3 lbs., 9 ozs.
Dimensions:	8.2" wide x 1.73" high x 10.6" deep

UM700 Digital Transmitter

RF Power output:	50 mW (nominal)
Frequency stability:	± 0.001%
Equivalent input noise:	–119 dBV, A-Weighted
Spurious radiation:	70 dB below carrier
Input Level:	Nominal 2 mV to 300 mV before limiting Greater than 1V maximum with limiting
Input impedance:	Taps provided for 100, 4k, 40k Ohm
Input compressor:	Dual-envelope limiter; 30 dB range
Gain control range:	43 dB; semi-log rotary control
Modulation indicators:	Dual multi-color LEDs indicate modulation level in 4 steps at -20, -10, 0, +10 dB with green and red indications
Low frequency roll-off adjustment:	–18 dB/octave; 35 Hz to 150 Hz
Controls:	2 position "ON-OFF" slide switch. Front panel knob adjusts audio gain. Recessed control on side panel adjusts low frequency rolloff. Rotary switches on side panel adjust transmitter frequency.
Audio Input Jack:	Switchcraft 5-pin locking (TA5M)

Note: The M150-7005P microphone is bypassed correctly for use with the UM700 Encrypted Digital Transmitter and is the recommended lavaliere microphone for the 700 Series wireless microphone system.

Antenna:	Detachable, flexible 1/4 wave insulated bronze cable. 50 Ohm port allows connection to test equipment.
Battery:	Precision compartment auto-adjusts to accept any known alkaline 9 Volt battery.
Battery Life:	4 hours (alkaline); 7.5 hours (lithium)
Weight:	6.3 ozs. including battery
Dimensions:	3.1 x 2.4 x .75 inches
Emission Designator:	180KQ2E

The FCC requires that the following statement be included in this manual:

This device and its antenna(s) must operate with a separation distance of at least 2.5 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

UT700 Digital Transmitter

RF Power output:	50 mW (nominal)
Frequency stability:	± 0.001%
Spurious radiation:	70 dB below carrier
Input compressor:	Dual-envelope limiter; 30 dB range
Gain control range:	43 dB; semi-log rotary control
Modulation indicators:	Dual multi-color LEDs indicate modulation level in 4 steps at -20, -10, 0, +10 dB with green and red indications
Controls:	2 position "ON-OFF" slide switch. Knob in battery compartment adjusts audio gain. Rotary switches in battery compartment adjust transmitter frequency.
Battery:	Precision compartment auto-adjusts to accept any known alkaline 9 Volt battery.
Battery Life:	3.5 hours (alkaline); 6.5 hours (lithium)
Weight:	12.4 ozs. with VariMic™ cardioid capsule and lithium battery
Dimensions:	9" long, x 2.05" diameter at largest point with VariMic™ cardioid capsule
Emission Designator:	180KQ2E

The FCC requires that the following statement be included in this manual:

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Specifications subject to change without notice.

Replacement Parts and Accessories

Part No.	Description
A500RA	Right angle, flexible whip UHF antenna
A600	Log Periodic Dipole Array antenna
A700A	Log Periodic Dipole Array antenna
AMMxx	Precut UHF antennas cut to specific blocks with SMA jacks.
AMM Kit	UHF antenna for UHF belt-pack transmitters with SMA jacks. Cut to frequency with supplied template.
21499	Replacement AC power cord (US NEMA Type Plug)
M150-7005P	Replacement lavaliere microphone for UM700 transmitter
RMP200-1	Rack mount kit for single UDR700 receiver
RMP200-2	Rack mount kit for two UDR700 receivers
UM700 Key Cable	Encryption Key setup cable for UM700 Transmitter
UT700 Key Cable	Encryption Key setup cable for UT700 Tranmitter
ARG2 - ARG100	Coaxial cables for remote antennas with BNC connectors on both ends
MC40	Audio cable adapter-Female XLR to TA5F 5-pin
A4F	4-pint XLR plug for making External DC Power Cable for UDR700
BCWIRE	Replacement belt clip for UM700
35804	Transmitter pouch for all hand-held transmitters

Service and Repair

If your system malfunctions, you should attempt to correct or isolate the trouble before concluding that the equipment needs repair. Make sure you have followed the setup procedure and operating instructions. Check the interconnecting cables and then go through the **Troubleshooting** section in this manual.

We strongly recommend that you **do not** try to repair the equipment yourself and **do not** have the local repair shop attempt anything other than the simplest repair. If the repair is more complicated than a broken wire or loose connection, send the unit to the factory for repair and service. Don't attempt to adjust any controls inside the units. Once set at the factory, the various controls and trimmers do not drift with age or vibration and never require readjustment. **There are no adjustments inside that will make a malfunctioning unit start working**.

LECTROSONICS' Service Department is equipped and staffed to quickly repair your equipment. In warranty repairs are made at no charge in accordance with the terms of the warranty. Out-of-warranty repairs are charged at a modest flat rate plus parts and shipping. Since it takes almost as much time and effort to determine what is wrong as it does to make the repair, there is a charge for an exact quotation. We will be happy to quote approximate charges by phone for out-of-warranty repairs.

Returning Units for Repair

For timely service, please follow the steps below:

A. DO NOT return equipment to the factory for repair without first contacting us by letter or by phone. We need to know the nature of the problem, the model number and the serial number of the equipment. We also need a phone number where you can be reached 8 A.M. to 4 P.M. (U.S. Mountain Standard Time).

B. After receiving your request, we will issue you a return authorization number (R.A.). This number will help speed your repair through our receiving and repair departments. The return authorization number must be clearly shown on the **outside** of the shipping container.

C. Pack the equipment carefully and ship to us, shipping costs prepaid. If necessary, we can provide you with the proper packing materials. UPS is usually the best way to ship the units. Heavy units should be "double-boxed" for safe transport.

D. We also strongly recommend that you insure the equipment, since we cannot be responsible for loss of or damage to equipment that you ship. Of course, we insure the equipment when we ship it back to you.

Mailing address:
Lectrosonics, Inc.
PO Box 15900
Rio Rancho, NM 87174
USA

Shipping address:
Lectrosonics, Inc.
581 Laser Rd.
Rio Rancho, NM 87124
USA

Telephone:
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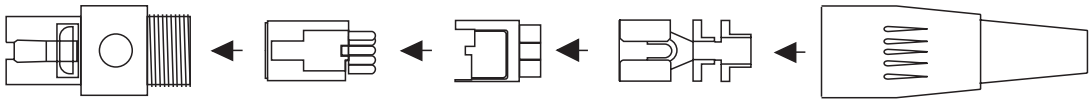
(800) 821-1121 Toll-free
(505) 892-6243 Fax

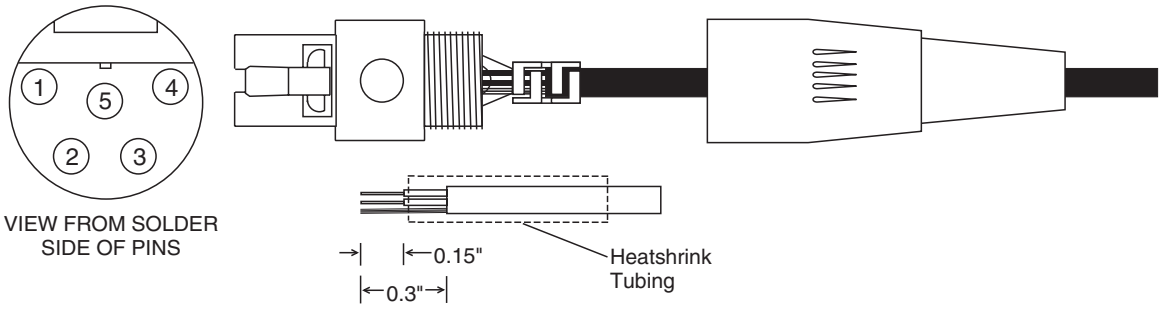
Web:
www.lectrosonics.com

E-mail:
sales@lectrosonics.com

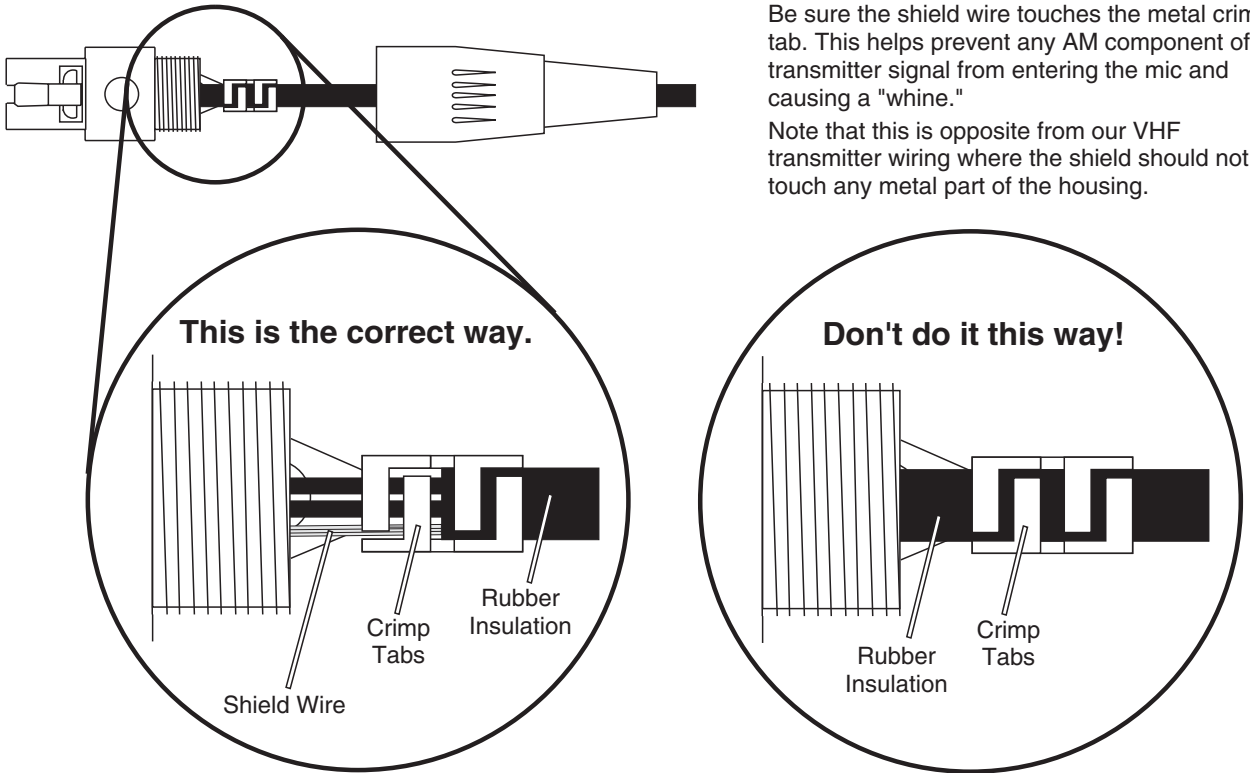
Microphone Cord Termination



TA5F Connector Assembly



Mic Cord Stripping Instructions



Be sure the shield wire touches the metal crimp tab. This helps prevent any AM component of the transmitter signal from entering the mic and causing a "whine."

Note that this is opposite from our VHF transmitter wiring where the shield should not touch any metal part of the housing.

LIMITED ONE YEAR WARRANTY

The equipment is warranted for one year from date of purchase against defects in materials or workmanship provided it was purchased from an authorized dealer. This warranty does not cover equipment which has been abused or damaged by careless handling or shipping. This warranty does not apply to used or demonstrator equipment.

Should any defect develop, Lectrosonics, Inc. will, at our option, repair or replace any defective parts without charge for either parts or labor. If Lectrosonics, Inc. cannot correct the defect in your equipment, it will be replaced at no charge with a similar new item. Lectrosonics, Inc. will pay for the cost of returning your equipment to you.

This warranty applies only to items returned to Lectrosonics, Inc. or an authorized dealer, shipping costs prepaid, within one year from the date of purchase.

This Limited Warranty is governed by the laws of the State of New Mexico. It states the entire liablility of Lectrosonics Inc. and the entire remedy of the purchaser for any breach of warranty as outlined above. NEITHER LECTROSONICS, INC. NOR ANYONE INVOLVED IN THE PRODUCTION OR DELIVERY OF THE EQUIPMENT SHALL BE LIABLE FOR ANY INDIRECT, SPECIAL, PUNITIVE, CONSEQUENTIAL, OR INCIDENTAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THIS EQUIPMENT EVEN IF LECTROSONICS, INC. HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL THE LIABILITY OF LECTROSONICS, INC. EXCEED THE PURCHASE PRICE OF ANY DEFECTIVE EQUIPMENT.

This warranty gives you specific legal rights. You may have additional legal rights which vary from state to state.

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