

MOD-16PRO

WIRELESS MICROPHONE SYSTEM

MOD-16H/16P/16LV/16HS/16G SERIES



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— English —

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SAFETY RELATED SYMBOLS



The symbol is used to indicate that some hazardous live terminals are involved within this apparatus, even under the normal operating conditions.



The symbol is used in the service documentation to indicate that specific component shall be only replaced by the component specified in that documentation for safety reasons.



Protective grounding terminal.



Alternating current /voltage.



Hazardous live terminal .

ON: Denotes the apparatus turns on.

OFF: Denotes the apparatus turns off, because of using the single pole switch, be sure to unplug the AC power to prevent any electric shock before you proceed your service.

WARNING: Describes precautions that should be observed to prevent the danger of injury or death to the user.



Disposing of this product should not be placed in municipal waste and should be separate collection.

CAUTION: Describes precautions that should be observed to prevent danger of the apparatus.

WARNING

• Power Supply

Ensure the source voltage matches the voltage of the power supply before turning ON the apparatus.

Unplug this apparatus during lightning storms or when unused for long periods of time.

• External Connection

The external wiring connected to the output hazardous live terminals requires installation by an instructed person, or the use of ready-made leads or cords.

• Do not Remove any Cover

There are maybe some areas with high voltages inside, to reduce the risk of electric shock, do not remove any cover if the power supply is connected.

The cover should be removed by the qualified personnel only.
No user serviceable parts inside.

• Fuse

To prevent a fire, make sure to use fuses with specified standard (current, voltage, type). Do not use a different fuse or short circuit the fuse holder.

Before replacing the fuse, turn OFF the apparatus and disconnected the power source.

• Protective Grounding

Make sure to connect the protective grounding to prevent any electric shock before turning ON the apparatus.

Never cut off the internal or external protective grounding wire or disconnect the wiring of protective grounding terminal.

• Operating Conditions

This apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on this apparatus.

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

Do not use this apparatus near water.
Install in accordance with the manufacturer's

8. Warranty

1. WARRANTY REGISTRATION CARD

To obtain Warranty Service, the buyer should first fill out and return the enclosed Warranty Registration Card within 10 days of the Purchase Date. All the information presented in this Warranty Registration Card gives the manufacturer a better understanding of the sales status, so as to purport a more effective and efficient after-sales warranty service. Please fill out all the information carefully and genuinely, miswriting or absence of this card will void any of your warranty service.

2. RETURN NOTICE

- 2.1 In case of return for any warranty service, please make sure that the product is well packed in its original shipping carton, and it can protect your unit from any other extra damage.
- 2.2 Please provide a copy of your sales receipt or other proof of purchase with the returned machine, and give detail information about your return address and contact telephone number.
- 2.3 A brief description of the defect will be appreciated.
- 2.4 Please prepay all the costs involved in the return shipping, handling and insurance.

3. TERMS AND CONDITIONS

- 3.1 ▲LTO warrants that this product will be free from any defects in materials and/or workmanship for a period of 1 year from the purchase date if you have completed the Warranty Registration Card in time.
- 3.2 The warranty service is only available to the original consumer, who purchased this product directly from the retail dealer, and it can not be transferred.
- 3.3 During the warranty service, ▲LTO may repair or replace this product at its own option at no charge to you for parts or for labor in accordance with the right side of this limited warranty.
- 3.4 This warranty does not apply to the damages to this product that occurred as the following conditions:
 - Instead of operating in accordance with the user's manual thoroughly, any abuse or misuse of this product.
 - Normal tear and wear
 - The product has been altered or modified in any way .
 - Damage which may have been caused either directly or indirectly by another product / force / etc.
 - Abnormal service or repairing by anyone other than the qualified personnel or technician.And in such cases, all the expenses will be charged to the buyer.

instructions. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not block any ventilation openings. No naked flame sources, such as lighted candles, should be placed on the apparatus.

IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions.
- Follow all instructions.
- Keep these instructions.
- Heed all warnings.
- Only use attachments/accessories specified by the manufacturer.

• Power Cord and Plug

Do not defeat the safety purpose of the polarized or grounding type plug.

A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

• Cleaning

When the apparatus needs a cleaning, you can blow off dust from the apparatus with a blower or clean with rag etc.

Don't use solvents such as benzol, alcohol, or other fluids with very strong volatility and flammability for cleaning the apparatus body. Clean only with dry cloth.

• Servicing

Refer all servicing to qualified personnel. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so .

Servicing is required when the apparatus has been damaged in any way ,such as power supply cord or plug is damaged , liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

This device complies with Part 15 of the FCC Rules. 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.

WARNING: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

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F8:850.000-874.000(850-879)MHz (For other market)

CH0	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11
850.125	850.325	850.525	850.725	850.925	851.125	851.325	851.525	851.725	851.925	852.125	852.325
CH12	CH13	CH14	CH15	CH16	CH17	CH18	CH19	CH20	CH21	CH22	CH23
852.525	852.725	852.925	853.125	853.325	853.525	853.725	853.925	854.125	854.325	854.525	854.725
CH24	CH25	CH26	CH27	CH28	CH29	CH30	CH31	CH32	CH33	CH34	CH35
854.925	855.125	855.325	855.525	855.725	855.925	856.125	856.325	856.525	856.725	856.925	857.125
CH36	CH37	CH38	CH39	CH40	CH41	CH42	CH43	CH44	CH45	CH46	CH47
857.325	857.525	857.725	857.925	858.125	858.325	858.525	858.725	858.925	859.125	859.325	859.525
CH48	CH49	CH50	CH51	CH52	CH53	CH54	CH55	CH56	CH57	CH58	CH59
859.725	859.925	860.125	860.325	860.525	860.725	860.925	861.125	861.325	861.525	861.725	861.925
CH60	CH61	CH62	CH63	CH64	CH65	CH66	CH67	CH68	CH69	CH70	CH71
862.125	862.325	862.525	862.725	862.925	863.125	863.325	863.525	863.725	863.925	864.125	864.325
CH72	CH73	CH74	CH75	CH76	CH77	CH78	CH79	CH80	CH81	CH82	CH83
864.525	864.725	864.925	865.125	865.325	865.525	865.725	865.925	866.125	866.325	866.525	866.725
CH84	CH85	CH86	CH87	CH88	CH89	CH90	CH91	CH92	CH93	CH94	CH95
866.925	867.125	867.325	867.525	867.725	867.925	868.125	868.325	868.525	868.725	868.925	869.125
CH96	CH97	CH98	CH99								
869.325	869.525	869.725	869.925								

F6: 740.000-760.000(740-769)MHz (For U.S. market)

CH0	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11
740.125	740.325	740.525	740.725	740.925	741.125	741.325	741.525	741.725	741.925	742.125	742.325
CH12	CH13	CH14	CH15	CH16	CH17	CH18	CH19	CH20	CH21	CH22	CH23
742.525	742.725	742.925	743.125	743.325	743.525	743.725	743.925	744.125	744.325	744.525	744.725
CH24	CH25	CH26	CH27	CH28	CH29	CH30	CH31	CH32	CH33	CH34	CH35
744.925	745.125	745.325	745.525	745.725	745.925	746.125	746.325	746.525	746.725	746.925	747.125
CH36	CH37	CH38	CH39	CH40	CH41	CH42	CH43	CH44	CH45	CH46	CH47
747.325	747.525	747.725	747.925	748.125	748.325	748.525	748.725	748.925	749.125	749.325	749.525
CH48	CH49	CH50	CH51	CH52	CH53	CH54	CH55	CH56	CH57	CH58	CH59
749.725	749.925	750.125	750.325	750.525	750.725	750.925	751.125	751.325	751.525	751.725	751.925
CH60	CH61	CH62	CH63	CH64	CH65	CH66	CH67	CH68	CH69	CH70	CH71
752.125	752.325	752.525	752.725	752.925	753.125	753.325	753.525	753.725	753.925	754.125	754.325
CH72	CH73	CH74	CH75	CH76	CH77	CH78	CH79	CH80	CH81	CH82	CH83
754.525	754.725	754.925	755.125	755.325	755.525	755.725	755.925	756.125	756.325	756.525	756.725
CH84	CH85	CH86	CH87	CH88	CH89	CH90	CH91	CH92	CH93	CH94	CH95
756.925	757.125	757.325	757.525	757.725	757.925	758.125	758.325	758.525	758.725	758.925	759.125
CH96	CH97	CH98	CH99	CH100	CH101	CH102	CH103	CH104	CH105	CH106	CH107
759.325	759.525	759.725	759.925	760.125	760.325	760.525	760.725	760.925	761.125	761.325	761.525
CH108	CH109	CH110	CH111	CH112	CH113	CH114	CH115	CH116	CH117	CH118	CH119
761.725	761.925	762.125	762.325	762.525	762.725	762.925	763.125	763.325	763.525	763.725	763.925
CH120	CH121	CH122	CH123	CH124	CH125	CH126	CH127	CH128	CH129	CH130	CH131
764.125	764.325	764.525	764.725	764.925	765.125	765.325	765.525	765.725	765.925	766.125	766.325
CH132	CH133	CH134	CH135	CH136	CH137	CH138	CH139	CH140	CH141	CH142	CH143
766.525	766.725	766.925	767.125	767.325	767.525	767.725	767.925	768.125	768.325	768.525	768.725

7. ANNEX

7.1 Frequency Band Selection

Most countries closely regulate the radio frequencies used in the transmission of wireless information. These regulations state which devices can use which frequencies, and help to limit the amount of RF(radio frequency)interference in all wireless communications. To be flexible enough to operate worldwide, MOD-16PRO Wireless receivers are available in a number of models, each with a unique frequency range. Each frequency range, or band, spans up to 24MHz of the wireless broadcast spectrum.

7.2 Frequency Ranges

F7:798.000-822.000(798-827)MHz (For Europe market)

CH0	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11
798.125	798.325	798.525	798.725	798.925	799.125	799.325	799.525	799.725	799.925	800.125	800.325
CH12	CH13	CH14	CH15	CH16	CH17	CH18	CH19	CH20	CH21	CH22	CH23
800.525	800.725	800.925	801.125	801.325	801.525	801.725	801.925	802.125	802.325	802.525	802.725
CH24	CH25	CH26	CH27	CH28	CH29	CH30	CH31	CH32	CH33	CH34	CH35
802.925	803.125	803.325	803.525	803.725	803.925	804.125	804.325	804.525	804.725	804.925	805.125
CH36	CH37	CH38	CH39	CH40	CH41	CH42	CH43	CH44	CH45	CH46	CH47
805.325	805.525	805.725	805.925	806.125	806.325	806.525	806.725	806.925	807.125	807.325	807.525
CH48	CH49	CH50	CH51	CH52	CH53	CH54	CH55	CH56	CH57	CH58	CH59
807.725	807.925	808.125	808.325	808.525	808.725	808.925	809.125	809.325	809.525	809.725	809.925
CH60	CH61	CH62	CH63	CH64	CH65	CH66	CH67	CH68	CH69	CH70	CH71
810.125	810.325	810.525	810.725	810.925	811.125	811.325	811.525	811.725	811.925	812.125	812.325
CH72	CH73	CH74	CH75	CH76	CH77	CH78	CH79	CH80	CH81	CH82	CH83
812.525	812.725	812.925	813.125	813.325	813.525	813.725	813.925	814.125	814.325	814.525	814.725
CH84	CH85	CH86	CH87	CH88	CH89	CH90	CH91	CH92	CH93	CH94	CH95
814.925	815.125	815.325	815.525	815.725	815.925	816.125	816.325	816.525	816.725	816.925	817.125
CH96	CH97	CH98	CH99								
817.325	817.525	817.725	817.925								

1. Introduction

▲LTO MOD-16 wireless systems have been designed for Vocalists, Presenters and performing Musicians. These wireless systems are based on a sophisticated and innovative PLL circuit but, at the same time, are worry-free and easy to use. Large back lighted displays are available both on the Receiver and the Transmitters and simple Menus allow for a large number of functions such as Frequency Select, Sensitivity, Muting, etc. But what makes the MOD-16 wireless systems truly unique is the MODELING circuit. Special Models have been created for human voice as well as for electric guitar and bass so that your MOD-16 wireless system allows for unprecedented flexibility of sound. It is like to have 16 different systems in one system only.

Please read this Manual carefully before operation and enjoy playing with your MOD-16 system!

Your MOD-16 system comes with a MOD-16PRO wireless Receiver and either one of the following Transmitters:

MOD-16PRO Receiver



MOD-16H

It is a handheld transmitter with rubberised finished and hi-fi level microphone capsule.



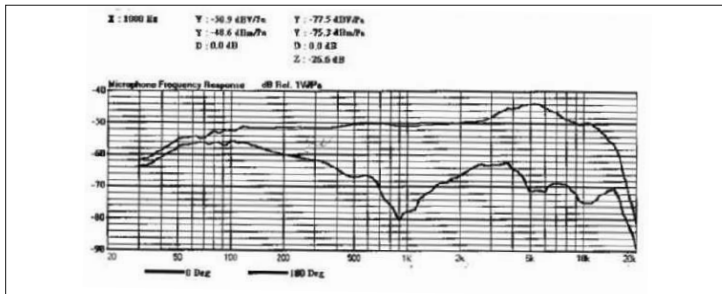
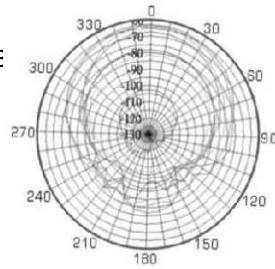
Type: Dynamic Mic.

Frequency response: 50Hz~16kHz(±3dB)

Impedance: 300Ω ±20% at 1kHz

Sensitivity: -71dB ±3dB

Direction: Omni-directional



MOD-16P/16LV/16HS/16G

A bodypack transmitter with belt clip. The MOD-16P transmitter will come with either:



- 1.A cable to be connected to an electric guitar or bass(MOD-16G)
- 2.A Lavalier Microphone. This is the little "bug" to be clipped on ties, shirts, nipples, Etc.(MOD-16LV)
- 3.A Headset Microphone that is fit like a pair of sunglasses so that the Player has both hands free to play an instrument, dance, shot the Audience, etc.(MOD-16HS)

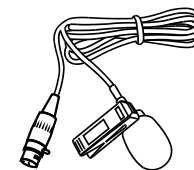
MODEL	MOD-16H	MOD-16P/16LV/16HS/16G
SPECIFICATION		
Oscillation mode	PLL UHF SYNTHESIZED	
Carrier frequency band	UHF 470-900 MHz Dependent on applicable country regulations	
Frequency response	50 Hz-15KHz (±3dB)	
Frequency stability	±0.005% (-10°C ~ 50°C)	
T.H.D.	1KHz<0.8%	
Modulation mode	FM (F3E)	
RF output power	5-50mW(adjustable 3 bands)	
Dynamic	> 100dB	
Tone frequency	30-33 KHz	
Current drain	100mA	
Max. Deviation	±35KHz	
Battery	"AA" type × 2	
Optional	Nickel hydrogen battery +charger	
Mic. Capsule(optional)	Condenser or Dynamic Capsule	Condenser or Dynamic Capsule
Dimensions	277x Φ36.5mm (10.9"×Φ1.44")	97mm×6 8mm±2 2mm(3.82"×2.68"×0.87")
Weight	0.246Kg	0.082Kg

6. Technical Specifications

MODEL	MOD-16PRO
Channel	Multi-channels, up to 100 frequency presets for each frequency bands
Frequency band	UHF 470-900 MHz Dependent on applicable country regulations
Receiver type	PLL UHF SYNTHESIZED
Frequency response	50 Hz-15KHz (± 3 dB)
Frequency stability	$\pm 0.005\%$ (-10°C-50°C)
T.H.D.	1KHZ < 0.8%
Modulation mode	FM (F3E)
S/N Ratio	> 90dB
Dynamic	> 100dB
RF sensitivity	-100 dBm/30dB SINAD
Audio output	Unbalanced 6.3mm phone jack 550mV ; ± 20 KHz deviation
Balance output	1.1V , 20KHz deviation
Power supply	DC 15V/ 500mA (AC 115V/230V 50/60Hz adaptor)
Dimensions	217(W) \times 122(D) \times 44(H)mm; (8.2" \times 6.1" \times 1.7)
Weight	0.385Kg



HM-38, Condenser microphone
Preset impedance: 600ohm;
Freq. response: 80-12KHz;
Sensitivity: -68dB+/-3dB at 1KHz;
Directional: Uni-directional;
Weight: 52g (0.12lb)



LM-10, Clip microphone
Preset impedance: 680ohm;
Freq. response: 50-12KHz;
Sensitivity: -65dB ± 3 dB at 1KHz
Directional: $\Phi 12 \times 180$ mm
($\Phi 0.47" \times 7.1"$)
Weight: 22g(0.049lb)

2. Features

FEATURES OF MOD-16PRO, PLL UHF DIVERSITY RECEIVER

- The friendly User Interface including two digit displays and intuitive MENU system for easy operation.
- 2 Antennas and switching diversity circuit
- Selector for three different output levels depending of kind of receiver used
- Squelch control to minimize noise.

FEATURES OF MOD-16H/16P/16LV/16HS/16G TRANSMITTERS

- Soft touch rubberised painting to avoid handling noise
- Rechargeable battery design
- Selector for three different output levels depending of kind of receiver used
- LCD display
- Battery status display
- Mute function (this function is very welcomed by Politicians...)
- Lock function to avoid miss action during a live performance

Each MOD-16 System complies with EMC regulations and includes 100 different channels. (Not all channels may be available in certain Countries depending on local regulations).

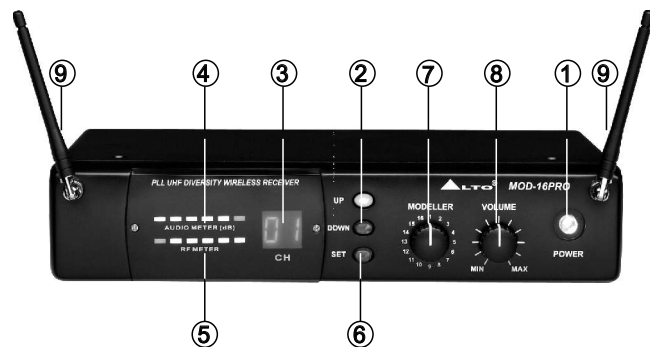
They are manufactured under ISO9000:2000, ISO/TS 16949:2002 quality management system.

3. Control Elements:

Ok, enough with numbers. Let's start to familiarize with your MOD-16 System.
First of all, the MOD-16PRO Receiver:

3.1 MOD-16PRO, PLL UHF Diversity Receiver

FRONT PANEL



- ① **Power Switch:** We are afraid you can not use the MOD-16R if you don't switch the Power ON!
- ② **UP/DOWN Keys:** You can adjust the right values through these two keys once the MENU is activated.
- ③ **DISPLAY:** This double digit display shows you the number of channel operating on your MOD-16PRO. The same number must appear on your Transmitter for proper functioning.
- ④ **AF Display:** It shows the level of the incoming audio signal. When "0" LED lights up the incoming audio signal is optimized and will not present distortion. If the "+6" LED lights up, the audio signal is overloaded and you will hear distortion. If only the "-12" LED lights up only 10% of the available signal reaches the Receiver. For optimal sound reproduction, please do not exceed the "0" level.
- ⑤ **RF Display:** It shows the level of the incoming radio signal. Optimum reception is granted when all the LEDs light up. If no LED lights up, there is minimum or no radio signal coming into the Receiver. If only a few LEDs light up you may still operate the system but it means you are in a poor reception mode due to Antenna positioning, distance in between Receiver and Transmitter.
- ⑥ **MENU Key (SET):** Via this key you can activate the desired function described above.
- ⑦ **Modeller:** Adjust this knob to select the right modelling preset you wish to perform. There are total 16 options for you. Please refer to 5. Modelling Technology for Microphones for further details.

MODEL 5: DE-ESSER- The name tells everything. Use it to de-emphasize the sibilants, like the letter sound 's', for example, from your vocals.

MODEL 6: VINTAGE RADIO- Old tube based Receivers made the Announcer voice sound like... yeah, we call it Vintage. Try it for a smooth satin voice. Ideally used for speech, but we found some other neat applications in the studio as well!

MODEL 7: MID-WARMTH, a moderate voice enhancement making use of Bass enhancer.

MODEL 8: GROOVY- to add a touch of groove to Male and Female Lead Vocalist. Perfect for Blues.

MODEL 9: SHARP- makes human voice quite crispy. Perfect for voice poor in high frequencies or if you get a cold...

MODEL 10: KARAOKE- yes, microphones are used in a very peculiar way in Karaoke Bars and Venues. Usually the sound systems there are poor. Use this Model to add high frequencies and have your voice sound like a Pro's!

MODEL 11: PIANO BAR- it similar to the Karaoke Model but we have also added key low frequencies to give the voice more body.

MODEL 12: HEAVY METAL- This model will make your voice sound very aggressive. Good for Rock & Roll and if you have an argument with your Mother in law...

MODEL 13: DISCO- It is similar to the Heavy Metal model but more tailored for Disco Music.

MODEL 14: CHOIR- Selected frequencies have been manipulated to make this Model suitable for more than one vocalist when singing in a choir

MODEL 15: FEMALE VOICE- Female Singers voices present a frequency response that is quite different from the Male voice. This Model gently adds certain low frequencies to make the female voice more consistent and at the same time will make the highest frequencies of the female voice more sparkling and defined.

MODEL 16: PIANO BAR CHOIR- It is a combination of the Karaoke Model and the Piano Bar Model. Good when more than one voice is singing along together.

microphone capsules for their wireless systems but this flexibility is far behind the wide choice of tones or "models", as we call them at ▲LTO. In fact, a specific model of wireless microphone may be used by a male vocalist or female vocalist during a live performance, by a Priest in a church service, by a speaker during a seminar, by and aerobics teacher during a training lesson, by a DJ, by a choir, by an announcer, by an auction director, we could go on and on forever with endless applications.

It is now evident that each one of these users would benefit from a different tone or "model". But even the same user would like to get a different voicing or "model" depending on the style he is singing. What model serves the music best? It's fair to say that it will be different whether he's singing Rock, Blues, or Folk and, of course can also change from song to song. It is unlikely to buy several different microphone capsules in order to get different tone or "model" depending of the kind of use of performance. This would be unpractical, since it would be impossible to change a microphone capsule during a performance, not to mention the cost involved.

▲LTO has therefore created and integrated in some of its wireless receivers a range of MODELS. Using these 16 different MODELS the user can select different sound patterns simply with the turn of one knob. There are preset MODELS for male and female Vocalists, DJ, Speakers, Announcers, and more. In a few words, with the ▲LTO modelling technology applied to wireless systems, the User can "fine tune" the sound of his microphone in 16 different ways. Here is a List and description of the MODELS available on the ▲LTO Receivers:

MODEL 1: FLAT- In this position the Modeller is in bypass mode. The ▲LTO Modeller is not adding any character to the Audio Output

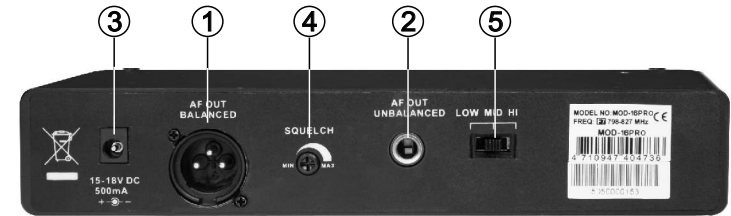
MODEL 2: CONFERENCE- To be used during Meetings. Especially made for speech and to avoid the typical boominess of many wireless microphones used for such purpose.

MODEL 3: BROADCAST- This Model will add a certain character to the signal. It is typical of the Male Announcers through a solid state Transmitter.

MODEL 4: WARMTH- Good for Lead Vocalist Male and Female. It will make the Male voice warmer and the Female voice more body.

- ⑧ **Volume Control:** This knob sets the audio signal level outputted through the balanced and unbalanced output jacks on the rear panel. Turn the knob clockwise fully for the max volume, and turn the knob counterclockwise fully for the min volume.
- ⑨ **Antenna Input Sockets:** Includes 2 antennas to secure the Diversity function. For optimal radio reception antennas should be placed vertically. You can fold the antennas inward for convenience of transportation.

THE REAR PANEL



- ① **Audio Output XLR:** To connect a balanced cable with XLR connector (Yes, we forgot to tell you that although your MOD-16 system is wireless, you still need to connect the receiver to your Mixing Desk and to a wall plug!)
- ② **Audio Output Jack:** To be used with an unbalanced cable and standard 1/4" mono jack.
- ③ **DC Input:** You can connect the supplied Adapter to this socket.
- ④ **Squelch:** The job of a squelch circuit is to reduce audible noise.
- ⑤ **LOW-MID-HIGH Key:** By pressing this key you can change the Audio Output level of your transmitter:
 LOW = -12dB
 MID = -6dB
 HI = 0dB

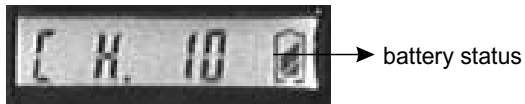
3.2 THE MOD16H Handheld Transmitter



① **Front Grill:** This spring steel mesh grill will protect the microphone capsule during a live performance. Especially made for heavy metal players, alcohol, drugs, etc..

② **LCD Display:** This nice blue LCD will indicate the current operation status.

③ **CH/ON Key:** If you press this key for a few seconds your Transmitter will switch ON and OFF. Once you have switched the unit ON, just press this key again slightly and you can edit various parameters such as CHANNEL, GROUP, RF POWER LEVEL and LOCK/UNLOCK. Once you are in the LOCK position no further operation is allowed and, in a few seconds, the display will show the current channel selected (0 to 99). Battery level will also be shown.



④ **SELECT Key:** Once you are in edit mode you can access this key to edit certain parameters. Press this key for a few seconds and the unit will enter in the MUTE mode. (In this way, you can tell your Bass Player what you think about the Sound Engineer without everybody knowing that!). Press it again for a few seconds and you will unmute the unit.

⑤ **Battery Compartment:** This unit may be powered from one pair of dry or rechargeable batteries, Um3 size AA 1.5V.

⑥ **Charge Jack:** With the rechargeable batteries putting inside, use the charger supplied in your system to recharge the batteries.



⑦ **Antenna:** The Antenna of your MOD-16H is integrated in the microphone body. Please do not cover the antenna for optimal RF transmission.



- Mute Function

Sometimes, there are things that you want to tell to your Friends on stage or your near by Companion during a Meeting but not necessarily to the rest of the world especially if you are live on CNN... A smart feature on your Transmitter allows you to easily MUTE the microphone so you are free to talk to the people next to you without the rest of the world hearing what you say. To enter into MUTE function simply press the SELECT key for a few seconds and the Transmitter will mute any audio signal going to the Receiver. Press SELECT again for a few seconds and you will UNMUTE the Transmitter.

Note: Why Alto Transmitters come with 100 different frequencies? Not because you will need to use 100 different microphones at the same time. It is unlikely that you will use more than 8 systems at the same time so why 100 frequencies? This depends mainly of Countries regulations. We offer frequencies from 470 to 900 MHZ. Some of these frequencies are illegal in certain Countries and vice versa. Offering such a wide range of frequencies we make sure that each single Country on the planet will have more than enough choice of frequencies available. Not only: A certain frequency can be too close to the frequency generated by lighting equipment, a computer, a fax machine and so on. Therefore, thanks to the large number of frequencies available you can easily switch to another frequency that is interference-free.

5. Modelling Technology for Wireless Microphones

This document applies to all ▲LTO Wireless Receivers used in conjunction with ▲LTO Handheld and Bodypack Transmitters

Fundamentals: ▲LTO has created and integrated a wireless microphone system offering 16 modelling presets resulting in a range of tonal response for a wide variety of applications. Until this innovative introduction made for the first time in the world in a wireless system by ▲LTO, wireless systems consisting of receiver and microphone transmitters produced a single sound pattern. Each microphone capsule design, because of the laws of physics, features its own frequency response and adds a certain tonal colour to the signal it transmits. If you do not like the colour added, you must change the microphone section of your transmitter, much like a painter chooses a different colour from his palette. Many brands today offer several different

- RF Output Power Select

Your Transmitter can operate on three different levels of output power. These are different from the Handheld Model and the Bodypack model.

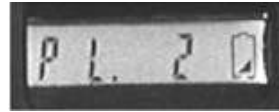
For the Handheld model the levels are

- PL 0, the output power is 5dBm;
- PL 1, the output power is 10dBm;
- PL 2, the output power is 15dBm;



and for the Bodypack version the levels are

- PL 0, the output power is 3dBm;
- PL 1, the output power is 5dBm;
- PL 2, the output power is 12dBm;



To select the proper Output Level, please press the CH/ON key three times and you will access the OUTPUT LEVEL Menu. Then press the SELECT key to change the output level from PL 0 to PL 2. IN a few seconds your setting will be automatically stored and the display will show again the operating frequency.

- LOCK Function

You don't want accidental change of frequency or other setting in the middle of a performance, do you? Any miss-operation during a live performance can be easily avoided thanks to the LOCK function. With the LOCK function ON no further change of setting is allowed until the Transmitter is unlocked. To access the LOCK menu press the CH/ON key four times and then press the SELECT key to lock or unlock the Transmitter Settings. Your choice of setting will automatically be saved into the Transmitter in a few seconds. The blue display shows "lock" and "unlock" depending on the operating mode.

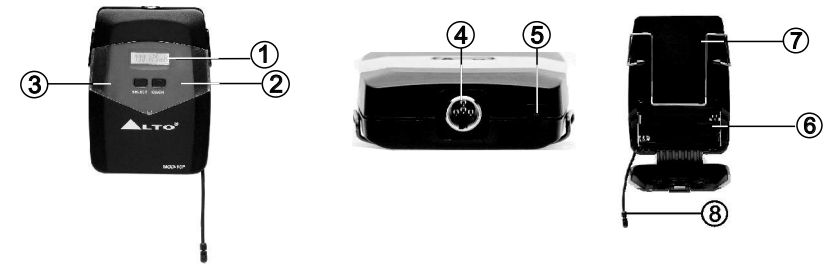


Fig 4: LOCK

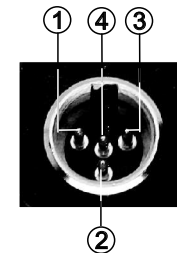


Fig 5: UNLOCK

3.3 MOD-16P/16LV/16HS/16G, Body Pack Transmitter



- ① **LCD display:** This nice blue LCD will indicate the current operation status.
- ② **CH-ON Key:** If you press this key for a few seconds your Transmitter will switch ON and OFF. Once you have switched the unit ON, just press this key again slightly and you can edit various parameters such as CHANNEL, GROUP, RF POWER LEVEL and LOCK/UNLOCK. Once you are in the LOCK position no further operation is allowed and, in a few seconds, the display will show the current channel selected (0 to 99). Battery level will also be shown.
- ③ **SELECT key:** Once you are in operation mode you can access this key to edit certain parameters. Press this key for a few seconds and the unit will enter in the MUTE mode. (In this way, you can tell your Bass Player what you think about the Sound Engineer without everybody knowing that!). Press it again for a few seconds and you will unmute the unit.
- ④ **Mini 4P Connector:** This connector is used to connect the unit with the clip microphones, for example, HM-38 condenser microphone or LM-10 clip microphone.



- Pin 1, for guitar, bass and keyboards
- Pin 2, GND
- Pin 3, Phantom power supply for Condenser microphone
- Pin 4, for Dynamic or Condenser microphone

- ⑤ **Charge Jack:** With the rechargeable batteries put inside, use the charger supplied in your system to recharge the batteries.
- ⑥ **Battery Compartment:** This unit may be powered from one pair dry or rechargeable batteries, UM3 size AA 1.5V.

- ⑦ **Belt Clip:** It is a detachable belt clip for easy carry during the live applications.
- ⑧ **Antenna:** It is a flexible antenna. To get effective transmission, never cover the antenna with hand, clothes, etc during the operation, and always position the transmitter nearby the receiver.

OK, if so far you remember all the functions and features of your Mod16 System you are ready to operate the Unit. Let's start from the Receiver:

4. Operation

4.1 For the MOD-16PRO, PLL UHF Diversity Receiver

First, turn the Unit ON. With your Transmitter in ON position, check the Channel Number indicated on the Transmitter display. Now, press the UP/DOWN keys until the same value is shown on the double digit display of your MOD-16 Receiver. Once Receiver and Transmitter are synchronized the LED Meters for Audio signal and Radio frequency will light up.

- Audio Output Level

The volume control knob adjusts the amount of audio signal to be sent to the mixing desk through the balanced or unbalanced output sockets on the rear panel. Turn the volume knob clockwise for maximum output and counterclockwise for minimum output volume.



- Squelch Control:

A squelch circuit is responsible to minimize audible noise during operation. Such circuit will mute the Receiver every time the incoming audio signal drops below a certain threshold. You must use the squelch control with maximum care. If the threshold is too high the squelch circuit will not only cut the noise but also mute certain low-level audio signals. Please experiment various threshold levels before Live operation and choose the most appropriate for your event.

4.2 For the MOD-16H/16P/16LV/16HS/16G transmitters

And now that you know how to operate your Mod16PRO Receiver, let's learn how to use the MOD-16 Transmitters. The following instructions apply both to the handheld version and to the bodypack version.

There are 2 keys on the Transmitter labelled CH/ON and SELECT.

Press the CH/ON key for a few seconds and the transmitter will be powered ON.

At this point the blue back lighted display will show:

- The channel at which the unit is operating
- The Battery Status



With the Transmitter switch ON you can slightly press the CH/ON key again and you will access to the following parameters:

- Preset Channel
- RF power level
- Lock/Unlock

In your Transmitter there are 100 frequencies. Each Group according to EMC regulations.

To select a frequency you must first switch your Transmitter ON by pressing the CH/ON key for a few seconds until you hear the beep and the blue display is lighted. Then press the CH/ON key again slightly and you will access the CHANNEL menu. At this point use the SELECT key to change the frequency value from 1 to 99. Your setting will be automatically saved in a few seconds and the display will go back to the main menu showing the operating frequency.