AMERICAN AUDIO

Q-FX19

DSP INSIDE!
DIGITAL SIGNAL PROCESSING

User Guide
and Reference Manual

Rev. 4/05

AMERICAN AUDIO
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### Q-FX19™ MAIN FEATURES

- Feather Fader Plus for Q-Start Control
- 3 Phono, 4 Line, 3 Auxiliaries & 3 Mic Inputs
- Balanced outputs • Rotary Kills
- High quality Feather Fader™ for smooth, clean cross fades (replaceable)
- Bass, Mid, and Treble for each channel
- 2 Independent Microphones with Separate EQ with combo connection (1/4”/XLR) - 3rd Mic on channel 4
- Zone Output with Bass and Treble Control
- Mono/Stereo Switch on Master
- High level headphone output
- Cue mixing
- Split cue for headphones
- Talk Over Switch - Reduces channel output Gain by 14dB +/- 2 dB
- Left & right turntable ground connectors conveniently located at each end of the rear panel
- Pre Fader Levels (PFL) for each channel
- On/Off switch for channel assign
- Gain control for each channel
- Rear inset “L” shape case design
- 120v/220v selectable
- Q-Start Compatible (for use with American Audio CD Players with Fader “Q” Start)
- 2 year limited warranty
- Master Level Indicator
- Master Output Pan Control
- Balanced XLR Output
- DSP Effects - Trans, Pan, Filter, Pitch Shift, Flanger, Phase, Echo, and Delay
- Digital BPM Display
WARNING: TO PREVENT FIRE OR ELECTRIC SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN, LIQUIDS, OR MOISTURE

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE, OR OTHER TYPE OF ELECTRICAL OUTLET UNLESS THE WIDE BLADES CAN BE CAREFULLY INSERTED INTO A MATCHING WIDE SLOT.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

NOTE: This product satisfies FCC regulations when shielded cables and connectors are used to connect the unit to other equipment. To prevent electromagnetic interference with electrical appliances such as radios and televisions, use shielded cables and connectors for connections.

LINE VOLTAGE SELECTION
- The desired voltage may be set with the VOLTAGE SELECTOR switch on the rear panel (using a flat head screwdriver).
- Do not force the VOLTAGE SELECTOR switch as this may cause damage
- If the VOLTAGE SELECTOR switch does not move smoothly, please contact a qualified service technician.

The serial and model number for this unit is located on the rear panel. Please write down the numbers here and retain for future reference.

Model No._____________________________
Serial No._____________________________

Purchase Notes:
Date of Purchase_______________________
Dealer Name__________________________
Dealer Address_________________________
Dealer Phone__________________________
The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

**GROUNDING OR POLARIZATION**

- If this product is equipped with a polarized alternating current plug (a plug having one blade wider than the other), it will fit into the outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

- If this product is equipped with a three-wire grounding-type plug, a plug having a third (grounding) pin, it will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

**POWER-CORD PROTECTION**

Supply power cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

**OUTDOOR ANTENNA GROUNDING**

- If an outdoor antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, the size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 1.

**LIGHTNING**

- For added protection for this product during a lightning storm, or when it is left unattended or unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system.

**POWER LINES**

- An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outdoor antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

**OVERLOADING**

- Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

**OBJECT AND LIQUID ENTRY**

- Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock.

- Never spill liquid of any kind on the product.

**SERVICING**

- Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

**DAMAGE REQUIRING SERVICE**

- Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
  - When the power-supply cord or plug is damaged.
  - If liquid has been spilled, or objects have fallen into the product.
  - If the product has been exposed to rain or water.
  - If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
  - If the product has been dropped or damaged in any way.
  - When the product exhibits a distinct change in performance — this indicates a need for service.

**REPLACEMENT PARTS**

- When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original parts. Unauthorized substitutions may result in fire, electric shock, or other hazards.

**SAFETY CHECK**

- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

**WALL OR CEILING MOUNTING**

- The product should not be mounted to a wall or ceiling.

**HEAT**

- The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.
1. For adult use only - Keep out of the reach of children.
2. Water and Moisture - The player should not be used near water - for example, near a bath tub, kitchen sink, laundry tub, in a wet basement or near a swimming pool, etc. Do not spill water or other liquids in to or on to your mixer.
3. Ventilation - The Mixer should be situated so that its location or position does not interfere with its proper ventilation. For example, the Mixer should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
4. Heat - The Mixer should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
5. Power Sources - The Mixer should be connected to a power supply (wall outlet) only of the type described in the operating instructions or as marked on the Mixer.
6. Servicing - The user should not attempt to service the Mixer beyond that described in the operating instructions. There are no user serviceable parts inside. All other servicing should be referred to qualified service personnel. The Player should be serviced by qualified service personnel when:
   A. The power-supply cord or the plug has been damaged.
   B. Objects have fallen, or liquid has been spilled into the Mixer.
   C. The Mixer has been exposed to rain or water.
   D. The Mixer does not appear to operate normally or exhibits a marked change in performance.
7. Never disassemble or modify your unit in any way, doing so will void your manufactures warranty.
8. Never plug this mixer in to a dimmer pack.
9. Do not let insecticides, benzene, or thinner come in contact with the surface of the unit.
10. This unit is intended for indoor use only, use of this product outdoors voids all warranties.
11. Always mount this unit in safe and stable matter.
12. Disconnect from main power before making any type of connection.
13. Cleaning - The mixer should be cleaned only as recommended by the manufacturer. Use a soft cloth to wipe down the outside of the unit. For stubborn stains moisten a soft cloth with glass cleaner or other mild detergent to wipe away any stains. Use a soft cloth to wipe any residual cleaner. Never use volatile cleaners such as benzene, solvent, or thinner to clean your unit, these cleaners will damage the units surface.
14. Handle the power supply cord carefully. Do not damage or deform; it may cause electric shock or malfunction when used. Hold plug attachment when removing from wall outlet. Do not pull on the cord.
15. To avoid electric shock, do not open the top cover when the unit is plugged in. If problems occur with the unit, call American Audio® customer support.
16. Do not place metal objects or spill any liquids inside or on the mixer. Electric shock or malfunction may occur.
17. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the mixer. Route your power cord out of the way of foot traffic.
18. Always have the front gain controls set to their lowest level during initial power-up to prevent speaker damage.
Introductions: Congratulations and thank you for purchasing the American Audio® Q-FX19™ mixer. This mixer is a representation of American Audio’s continuing commitment to produce the best and highest quality audio products possible at an affordable price. Please read and understand this manual completely before attempting to operate your new mixer. Please carefully read and understand the instructions in this manual thoroughly before attempting to operate this unit. These instructions contain important safety information regarding the use and maintenance of this unit. Take special care to follow all warning symbols and labels both on the unit and printed in this manual. Also, Please keep this manual with the unit, for future reference.

Customer Support:
American Audio® provides a toll free customer support line, to provide set up help and answer any question should you encounter problems during your initial set up or operation. You may also visit us on the web at www.americanaudio.us for any comments or suggestions. Service Hours are Monday through Friday 9:00 a.m. to 5:30 p.m. Pacific Standard Time.

Voice: (800) 322-6337
Fax: (323) 582-2610
E-mail: support@americandj.com

To purchase parts online visit http://parts.americandj.com

Caution! There are no user serviceable parts inside this mixer. Do not attempt any repairs yourself, without being instructed to do so by an authorized American Audio service technician. Doing so will void your manufactures warranty. In the unlikely event your mixer may require service, please contact American Audio® customer support.

Do not discard the packing carton in the trash. Please recycle when ever possible.

Please be sure to make any connections before plugging the mixer in to an electrical outlet. All fader and volume controls should be set to zero or minimum position, before the mixer is switched on. If the mixer has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch on the mixer immediately. The arising condensation of water might damage your device. Leave the device switched off until it has reached room temperature.

Operating Determinations:
• When installing this mixer, please make sure that the device is not exposed or will not be exposed to extreme heat, moisture or dust!
• Do not operate the mixer in extremely hot (more than 30°/100°F) or extremely cold (less than 5°C/40°F) surroundings.
• Keep the unit out of direct sunlight and away from heaters.
• Operate the mixer only after becoming familiar with its functions. Do not permit operation by persons not qualified for operating the mixer. Most damages are the result of unprofessional operation!
• Do not attempt to operate this mixer if the power cord has been frayed or damaged.
• Disconnect from main power before making any type of connection.
• Do not attempt to operate this mixer, if it becomes damaged in any way.
• Never operate this mixer when it’s covers are removed.
• To reduce the risk of electrical shock or fire, do not expose this mixer to rain or moisture.
• This mixer is intended for indoor use only, use of this product outdoors voids all warranties.
• During long periods of non-use, disconnect the mixer’s main power.
QUICK START: American Audio® would like to thank you for your purchase of this great audio product. For those of you that are too impatient to read the entire user manual we have compiled these quick start instructions. We hope that you will at least read through these instructions to familiarize yourself with the basics of this mixer. The Q-FX19™ is part of American Audio’s continuing evolution in audio technology. This unit has been built and designed to meet the needs of a typical DJ. We have attempted to provide you with the most reliable product on the market by using only components constructed of the finest material.

MASTER LEVEL - Use this level to control your main volume output. Try never to send an output of more than +4dB to your system. Signal at levels higher than this will start to distort and may cause damage to your system and speakers. Remember that a distorted signal from you mixer will only be multiplied throughout your system.

CHANNEL GAIN LEVEL - The channel gain levels are not to be used as volume controls. Never use the channel trim to set the output volume. These controls are used to aid in distortion control. Use these control to preset your signal level before the crossfader. With your channel faders in the maximum position, use the channel trim level to set an average output level of about +4dB on you master level meter.

HEADPHONES - To avoid damaging your headphones always be sure the headphone volume level (15) is set to minimum before plugging them in. To avoid sever hearing damage, never put the headphone on without making sure the headphone level is turned down.

MAIN MIC - The main mic connector uses a combo plug that allows you to connect either a 1/4” unbalanced jack or by a standard 3-pin XLR balanced connector. The main mic also has an independent volume control. When feedback occurs when using the mic, try lowering the level this may reduce the feedback. Always leave the mic level to it’s minimum level when not in use. Note: We recommend that you use a 500-600ohm microphone for the best sound quality.

PHONO/AUX LINE LEVEL SELECTOR SWITCH - This switch is used to change the selected input from phono to line and vice versa. The switch selectors are on the rear panel.
1. **MICROPHONE 1** - This combo jack will accept a standard 1/4 plug or XLR 3-pin balanced male plug. The volume output level for this microphone will be controlled by its own respective CHANNEL KNOB (27). **Note:** We recommend that you use a 500-600ohm microphone for the best sound quality.

2. **CHANNEL GAIN CONTROL** - This adjustment is used to adjust the audio source signal input gain for a channel. Never use the gain control to adjust a channel’s output volume. Setting the gain level properly will ensure a clean output signal. An improper gain level adjustment will send a distorted signal throughout the entire audio line which may damage speakers and amplifiers. To properly set a channel’s gain level control:
   1. Be sure the MASTER VOLUME CONTROL (18) is set to level 8.
   2. Set the CHANNEL FADER (23) to level 8.
   3. Begin playback on an audio source connected to the channel you are adjusting.
   4. Use the Gain Control to adjust an average output volume of +4 dB.
   5. Repeat this step for all channels.

3. **CHANNEL TREBLE CONTROL** - This knob is used to adjust the treble levels of a channel allowing for a maximum treble gain of 12dB or maximum decrease of -30dB. Turning the knob in a counter-clockwise direction will decrease the amount of treble applied to a channel signal, turning the knob in a clockwise direction will increase the amount of treble applied to a channel signal.

4. **CHANNEL MIDRANGE CONTROL** - This knob is used to adjust the midrange levels of a channel.
allowing for a maximum midrange gain of 12dB or maximum decrease of -30dB. Turning the knob in a counter-clockwise direction will decrease the amount of midrange applied to a channel signal, turning the knob in a clockwise direction will increase the amount of midrange applied to a channel signal.

5. CHANNEL BASS CONTROL - This knob is used to adjust the low frequency levels of a channel allowing for a maximum bass gain of 12dB or maximum signal decrease of -30dB. Turning the knob in a counter-clockwise direction will decrease the amount of bass applied to a channel signal, turning the knob in a clockwise direction will increase the amount of bass applied to a channel signal.

6. MASTER OUTPUT BALANCE CONTROL - This knob is used to control the pan, adjust how much of the signal is sent to the left and right output level. For true stereo imaging, maintain the knob in the 12 o’clock position.

7. ZONE LEVEL VOLUME OUTPUT CONTROL - This rotary knob is used to control the zone level volume. The zone level is not PFL, it is essentially a second master output volume with separate output volume control.

8. ZONE TREBLE CONTROL - This knob is used to adjust the low frequency levels of the ZONE allowing for a maximum bass gain of 12dB or maximum signal decrease of -12dB. Turning the knob in a counter-clockwise direction will decrease the amount of bass applied to the ZONE signal, turning the knob in a clockwise direction will increase the amount of bass applied to the ZONE signal.

9. ZONE BASS CONTROL - This knob is used to adjust the treble levels of the ZONE allowing for a maximum treble gain of 12dB or maximum decrease of -12dB. Turning the knob in a counter-clockwise direction will decrease the amount of treble applied to the ZONE signal, turning the knob in a clockwise direction will increase the amount of treble applied to the ZONE signal.

10. MASTER OUTPUT MONO/STEREO SWITCH - This switches the Master Output signal between stereo and mono.

11. LCD SCREEN - FOR INFORMATION SEE PAGES 15-17.

12. DSP EFFECTS (DIGITAL SIGNAL PROCESSING) - FOR INFORMATION SEE PAGES 15-17.

13. SPLIT CUE - This button will activate the "Split Cue" function. When used with a set of stereo headphones, the Split Cue function will assign the Cue signal to the left channel of the headphones and the Program (main output) signal to the right channel of the headphones. Essentially splitting the cue signal in half. This process will allow for headphones mixing. The CUE MIXING CONTROL (17) will also work in conjunction with function. Please note that this function will only work with a set of stereo headphones.

14. HEADPHONE JACK - This jack is used to connect your headphones to the mixer allowing you to monitor the cue source. Use headphones only rated at 8 ohms to 32 ohms. Most DJ headphones are rated at 16 ohm, these are highly recommended. Always be sure the CUE LEVEL VOLUME (15) is set to minimum before you put the headphones on.

15. CUE LEVEL VOLUME CONTROL - This knob is used to adjusts the headphone volume output level. Turn the knob in a clockwise direction to increase the headphone volume.

16. CROSSFADER FX ACTIVATOR - When this button is activated it transfers control of the the DEPTH FEEDBACK DIAL (65) to the CROSSFADER (21). While this function is engaged the DEPTH FEEDBACK KNOB (65) will not function. When this function is engaged, you are not able to store pre-set parameters.
17. **CUE MIXING CONTROL** - This function allows you to monitor the Cue level as well as the Program (main output) level in your headphones. A channel's Cue Level may only be monitored if the channel's PFL (19) function is selected. To select a channel's cue function press the PFL BUTTON (19) directly associated with the specific channel you wish to monitor. You may use the mixing function to blend both the Cue level and the Program level together. You can vary the output level to either hear more or less of either of the two levels. Sliding the Cue Mixing fader to the CUE position (left) will allow you to hear more of the Cue level. Sliding the knob to the PGM position (right) will allow you to hear more of the Program level (main output). You may also use the Cue Mixing Control to hear either the Cue level or the Program level exclusively. If the fader is in the full CUE position you will only hear the cue level, if the fader is in the full PGM position you will only hear the main output. This function is especially useful when mixing without a monitor.

18. **MASTER VOLUME CONTROL** - This slider is used to control the master output level (main volume). To avoid distorted output try to maintain an average output signal level no greater than +4 dB. (see Channel Gain 2) To avoid speaker damage that may be caused by excessive volume, be sure this slider is always set to zero (completely down) before turning the unit on.

19. **PFL (CUE SELECTOR) BUTTON** - These buttons are used to activate a channel's “CUE” mode. A red LED next to the Cue button will glow when a channel's cue mode is activated. The Cue function sends a channel's incoming signal to the headphones. The cue level is adjusted by the CUE LEVEL KNOB (15). Be sure the CUE MIXING SLIDER (17) is set to the “CUE” position to hear a selected channel source.

20. **FADER “X” ASSIGN BUTTON** - This button assigns a channel to the left side (X) of the CROSSFADER (21). When a channel is assigned to the left side of the CROSSFADER (21) that channel's output level is routed to and controlled by the CROSSFADER (21). Sliding the CROSSFADER (21) to left position will send the assigned channel's volume output to the MASTER VOLUME LEVEL (18) and sliding the CROSSFADER (21) to right position will cut that channel's volume to MASTER VOLUME LEVEL (18).

21. **FEATHER FADER PLUS CROSSFADER** - This fader is used to blend the output signals of channels one and two together. When the fader is in the full left position (channel 1), the output signal of channel one will be controlled by the master volume level. The same fundamentals will apply for channel two. Sliding the fader from one position to another will vary the output signals of channels one and two respectively. When the crossfader is set in the center position, the output signals of both the channels one and channels two will be even.

22. **FADER “Y” ASSIGN BUTTON** - This button assigns a channel to the right side (Y) of the CROSSFADER (21). When a channel is assigned to the right side of the CROSSFADER (21) that channel's output level is routed to and controlled by the CROSSFADER (21). Sliding the CROSSFADER (21) to right position will send the assigned channel's volume output to the MASTER VOLUME LEVEL (18) and sliding the CROSSFADER (21) to left position will cut that channel's volume to MASTER VOLUME LEVEL (18).

23. **CHANNEL VOLUME FADER** - These faders are used to control the output signal of any source assigned to its particular channel. However, master volume is controlled by the MASTER VOLUME CONTROL (18).

24. **Q-START ON/OFF SWITCH** - This function works in conjunction with a compatible American DJ® or American Audio® “Q” Start CD player. When used with a compatible CD player, you can use the crossfader to start and stop a CD Player with the slide of the mixer’s CROSSFADER (21). The ON/OFF...
“Q” START SWITCH activates the FADER “Q” START feature. When in the ON position, the FADER 
“Q” START automatically returns the CD player to the preset CUE POINT.

For example; Assuming you have two compatible American Audio™ CD players or a 
compatible dual CD player connected to channels one and two. When the Fader “Q” Start option 
is turned on, sliding the crossfader to the far left position will trigger playback on CD player 
1. When the crossfader is pushed to the far right position, playback on CD player 2 will 
begin, and CD player 1 will return to the cue position. Refer to your American Audio CD 
player user manual for setting CUE POINTS. Turn the ON/OFF SWITCH to the OFF 
position to disengaged “Q” Start function and resume to a normal fader.

25. CROSSFADER CURVE ADJUSTMENT - This rotary knob is used to change the way the cross-
fader will operate. The crossfader can operate in different modes, “NORMAL CURVE”, “QUICK 
CURVE” or any variation of the two. (Quick Curve usually used for scratching).

26. MIC 2 VOLUME CONTROL - This knob controls the output volume of MICROPHONE 2 (39). 
However, master volume is controlled by the MASTER VOLUME CONTROL (18).

27. MIC 1 VOLUME CONTROL - This knob controls the output volume of MICROPHONE 1 (1). 
However, master volume is controlled by the MASTER VOLUME CONTROL (18).

28. SOURCE SELECTOR SWITCH - These switches are used to select the input source assigned to 
each channel. Each channel may only be assigned one input source at a time. This switch must be in 
the “phono” position for turntable operation.

29. TALKOVER CONTROL - This function decreases all signal output except the microphone signal. 
The amount of decrease is preset to -14dB and is not user selectable.

30. MICROPHONE BASS CONTROL - This knob is used to adjust the low frequency levels of the micro-
phone with a maximum signal gain of 12dB or maximum signal decrease of -12dB. Turning the knob in 
a counter-clockwise direction will decrease the amount of bass applied to the microphone signal, turn-
ing the knob in a clockwise direction will increase the amount of bass applied to microphone signal.

31. MICROPHONE MIDRANGE CONTROL - This knob is used to adjust the midrange levels of the micro-
phone with a maximum signal gain of 12dB or maximum signal decrease of -12dB. Turning the knob in a 
counter-clockwise direction will decrease the amount of midrange applied to the microphone signal, turn-
ing the knob in a clockwise direction will increase the amount of midrange applied to microphone signal.

32. MICROPHONE TREBLE CONTROL - This knob is used to adjust the treble levels of the 
Microphone with a maximum signal gain of 12dB or maximum signal decrease of -12dB. Turning the knob in 
a counter-clockwise direction will decrease the amount of treble applied to the microphone signal, turn-
ing the knob in a clockwise direction will increase the amount of treble applied to microphone signal.
33. **MAIN POWER SWITCH** - This is the main power ON/OFF button. Before main power is applied, be sure you have made all connections to the mixer. Also be sure your amplifier(s) is(are) tuned off. Remember to avoid damaging pops to the speakers, the mixer is turned on first and turned off last.

34. **AC VOLTAGE SELECTOR** - This switch is used to change the operating voltage. Operating voltage can be toggled between 115v or 230v/50~60Hz. Be sure the selector is set to the proper voltage for your area before attempting to operate the unit. Always be sure main power is shut off before change the position of the Voltage Selector Switch.

35. **TRIM OUTPUT** - This knob is used to adjust the maximum voltage output level. Output voltage will range from 0v ~ 9v. This function may be used to limit the maximum signal output level.

36. **ZONE LEVEL OUTPUT** - Use this separate output signal to drive a booth monitor or separate sound system. The output level for these jacks will be controlled by the **ZONE VOLUME KNOB** (7). These RCA jacks send a low current, unbalanced output signal. These jacks should only be used for shorter cable runs (under 15 feet) to signal processors or looping to another mixer.

37. **GND (GROUND TERMINAL)** - Be sure to connect turntable ground leads to either or both of the two available ground terminals. This will reduce the humming and popping noises associated with magnetic phono cartridges.

38. **CHANNEL LINE LEVEL SELECTOR SWITCHES** - These switches are used to change the voltage line levels of there respected Phono / Aux RCA inputs jacks. When connecting turntables with magnetic cartridges to these jacks be sure the corresponding switch is in the “PHONO” position, and when using line level input devices be sure this switch is in the “AUX” position. Always be sure main power is shut off before change the position of the Line Level Selector Switch.

39. **MICROPHONE 2 CONNECTOR** - This jack is used to a connect a microphone to the mixer. Connect you microphone via this 1/4 inch (6.3mm) jack. The volume output level for this microphone will be controlled by its own respective **CHANNEL KNOB** (26).

40. **MICROPHONE 3 CONNECTOR** - This jack is used to a connect a microphone to the mixer. Connect you microphone via this 1/4 inch (6.3mm) jack. This microphone will be controlled through the channel 4 fader. The channel 4 EQ will also effect the microphone output. Be sure to flip the **SOURCE SELECTOR SWITCH** (28) to the “MIC 3” position to operate this microphone’s input signal.

41. **CHANNEL 1: PHONO 1/AUX 1 INPUT** - The type of input must directly reflect the selected
mode of the **LINE LEVEL SELECTOR SWITCH (38)**. Turntables equipped with MM pickup cartridge (All DJ turntable use MM pick-up cartridges) may be connected to these jacks as long as the **LINE LEVEL SELECTOR SWITCH (38)** is in the “PHONO 1” position. CD players, Tape Decks and other line level instruments may only be connected to these jacks as long as the **LINE LEVEL SELECTOR SWITCH (38)** is in the “AUX 1” position. Never connect line level instruments (CD players, tape decks, etc.) to these jacks when the **LINE LEVEL SELECTOR SWITCH (38)** is in the “PHONO 1” position, **THIS MAY SERIOUSLY DAMAGE YOUR MIXER!** The red colored RCA jack represents the right channel input and the white represents the left channel input. Input volume will be controlled by the channel three fader. The channel **SOURCE SELECTOR SWITCH (28)** must be in the “Phono 1/Aux 1” position, to monitor any source connected to these jacks.

42. **CHANNEL 1: LINE 1 INPUT JACKS** - **DO NOT CONNECT TURNTABLES TO THESE JACKS!** CD players, Tape Decks and other line level instruments may be connected to these jacks. The red colored RCA jack represents the right channel input and the white represents the left channel input. Input volume will be controlled by channel three fader. The channel **SOURCE SELECTOR SWITCH (28)** must be in the “Line 1” position, to monitor any source connected to these jacks.

43. **CHANNEL 2: PHONO 2/AUX 2 INPUT** - The type of input must directly reflect the selected mode of the **LINE LEVEL SELECTOR SWITCH (38)**. Turntables equipped with MM pickup cartridge (All DJ turntable use MM pick-up cartridges) may be connected to these jacks as long as the **LINE LEVEL SELECTOR SWITCH (38)** is in the “PHONO 2” position. CD players, Tape Decks and other line level instruments may only be connected to these jacks as long as the **LINE LEVEL SELECTOR SWITCH (38)** is in the “AUX 2” position. Never connect line level instruments (CD players, tape decks, etc.) to these jacks when the **LINE LEVEL SELECTOR SWITCH (38)** is in the “PHONO 2” position, **THIS MAY SERIOUSLY DAMAGE YOUR MIXER!** The red colored RCA jack represents the right channel input and the white represents the left channel input. Input volume will be controlled by the channel three fader. The channel **SOURCE SELECTOR SWITCH (28)** must be in the “Phono 2/Aux 2” position, to monitor any source connected to these jacks.

44. **CHANNEL 2: LINE 2 INPUT JACKS** - **DO NOT CONNECT TURNTABLES TO THESE JACKS!** CD players, Tape Decks and other line level instruments may be connected to these jacks. The red colored RCA jack represents the right channel input and the white represents the left channel input. Input volume will be controlled by channel three fader. The channel **SOURCE SELECTOR SWITCH (28)** must be in the “Line 2” position, to monitor any source connected to these jacks.

45. **CHANNEL 3: PHONO 3/AUX 3 INPUT** - The type of input must directly reflect the selected mode of the **LINE LEVEL SELECTOR SWITCH (38)**. Turntables equipped with MM pickup cartridge (All DJ turntable use MM pick-up cartridges) may be connected to these jacks as long as the **LINE LEVEL SELECTOR SWITCH (38)** is in the “PHONO 3” position. CD players, Tape Decks and other line level instruments may only be connected to these jacks as long as the **LINE LEVEL SELECTOR SWITCH (38)** is in the “AUX 3” position. Never connect line level instruments (CD players, tape decks, etc.) to these jacks when the **LINE LEVEL SELECTOR SWITCH (38)** is in the “PHONO 3” position, **THIS MAY SERIOUSLY DAMAGE YOUR MIXER!** The red colored RCA jack represents the right channel input and the white represents the left channel input. Input volume will be controlled by the channel three fader. The channel **SOURCE SELECTOR SWITCH (28)** must be in the “Phono 3/Aux 3” position, to monitor any source connected to these jacks.

46. **CHANNEL 3: LINE 3 INPUT JACKS** - **DO NOT CONNECT TURNTABLES TO THESE JACKS!** CD players, Tape Decks and other line level instruments may be connected to these jacks. The red colored RCA jack represents the right channel input and the white represents the left channel input. Input volume will be controlled by channel three fader. The channel **SOURCE SELECTOR SWITCH (28)** must be in the “Line 3” position, to monitor any source connected to these jacks.
47. **CHANNEL 4: RCA LINE INPUT JACKS** - These Jacks are used for line level inputs. Connect CD players or Tape Decks to line level inputs. Line level musical instruments with stereo outputs such as Rhythm Machines or Samplers should also be connected to line level inputs. The red colored RCA jack represents the right channel input and the white represents the left channel input. Input volume will be controlled by the channel four fader. Do not connect turntables to these jacks, turntables should only be connected to “Phono” inputs.

48. **REC OUT** - This is a low current unbalanced output source designed for various tape and CD recorders. The Record Out (REC OUT) level is dictated by the CHANNEL FADER LEVEL (23), it is not influenced by the MASTER VOLUME CONTROL (18).

49. **RCA MASTER OUTPUTS** - The Master Output includes a pair XLR BALANCED JACKS (53) as well as a pair of RCA Unbalanced Jacks. The RCA jacks send a low current unbalanced output signal. These jacks should only be used for shorter cable runs to signal processors or looping to another mixer. For cable runs greater than 15 feet use the XLR BALANCED JACKS (53).

50. **PLAYER A CONTROL** - This jack is used to control the “Q-Start” functionality between the mixer and a compatible American Audio® or American DJ® CD Player. Using the mini plug included with your CD player, connect from the CD player controller out jack to this jack. Player A “Q-Start” functionality will be controlled by the left side (X) of the CROSSFADER (21). For more information on “Q-Start” functionality refer to the user manual included with your CD player. Be sure to only use the mono tip mini plug included with your CD player to avoid damage to the mixer and/or the CD player.

51. **PLAYER B CONTROL** - This jack is used to control the “Q-Start” functionality between the mixer and a compatible American Audio® or American DJ® CD Player. Using the mini plug included with your CD player, connect from the CD player controller out jack to this jack. Player B “Q-Start” functionality will be controlled by the right side (Y) of the CROSSFADER (21). For more information on “Q-Start” functionality refer to the user manual included with your CD player. Be sure to only use the mono tip mini plug included with your CD player to avoid damage to the mixer and/or the CD player.

52. **DIGITAL OUTPUT** - This jack is used to send a stereo digital output signal to a digital input device.

53. **BALANCED XLR MASTER OUTPUTS JACKS** - The Master Output includes a pair of XLR Balanced jacks as well as a pair of RCA UNBALANCED JACKS (49). The 3-pin XLR jacks send a high current balanced output signal. These jacks should be used when you will be driving an amp or other audio equipment with a balanced input, or whenever you will be running a signal line greater than 15 feet. Always, use these jacks whenever possible.

54. **BALANCED TRS 1/4” ZONE OUTPUT JACKS** - The Zone Output includes a pair of TRS Balanced jacks as well as a pair of RCA UNBALANCED JACKS (36). The TRS jacks send a high current balanced output signal. These jacks should be used when you will be driving an amp or other audio equipment with a balanced input, or whenever you will be running a signal line greater than 15 feet. Always, use these jacks whenever possible.

55. **AC CONNECTION** - This connector is used to supply main power to the unit via the included detachable power cord. The power connection uses an I.E.C. type connector, use only the supplied, polarized AC power cord. Use only a power cord that matches this type of connection. Be sure to only connect this unit to a power outlet that matches the printed power label on the unit. Never use...
a power cord when the ground prong has been removed or broken off. The ground prong is used to reduce the risk of electrical shock in case of an electrical short. This cord is designed to fit in one direction only. Do not attempt to force a cord if it does not fit, be sure the cord is being inserted properly.

56. *CUE LEVEL DISPLAY* - This display measures the incoming source signal into a channel. This measurement will directly reflect the channel(s) with the PFL function engaged.

57. *CHANNEL OUTPUT LEVEL INDICATOR* - The indicators are used to measure incoming signal levels. Use this indicator to visually maintain an average signal output of +4dB. A consistent average output level of +4dB will produce a clean output signal.

58. *INPUT INDICATOR* - These indicators are used to give a visual representation of the effect input selector (68). Notice: When Mic 1+2 is selected, both Mic 1 and Mic 2 will glow in the display.

59. *EFFECTS INDICATOR* - When any of the eight effects are in use, these indicators will glow to match any of the eight effects that may be functioning.

60. *DELAY/PHASE BUTTON* - This button is used to activate and deactivate either the DELAY or PHASE effect. When the DELAY effect is activated the DELAY/PHASE BUTTON will glow green, when the PHASE effect is selected the button will glow red. The DELAY effect repeats the sound that was
last heard, but it does not echo the sound. The PHASE effect adds a different tonal definition. The effects have two adjustable parameters, Time Array (TA) (67) and Depth Feedback (DF) (65).

61. ECHO/FILTER BUTTON - This button is used to activate and deactivate either the ECHO or FILTER effect. When the ECHO effect is activated the ECHO/FILTER BUTTON will glow green, when the FILTER effect is selected the button will glow red. The ECHO effect adds an echo to your output signal. The FILTER effect tweaks the original sound to add different tonal definition. The effects have two adjustable parameters, Time Array (TA) (67) and Depth Feedback (DF) (65).

62. FX ON BUTTON - This button functions as an effect Master on/off button and is used to activate and deactivate the effects.

63. TAP BUTTON - This button is used to override and manually set a tracks BPM. Occasionally the built-in BPM meter may not function as desired. This button allows you to override the internal beat clock and manually set a tracks BPMs. To manually set the BPMs; tap this button a few times to a tracks heavy down beat, the unit will automatically calculate your tapping and translate it into a tracks BPM. The BPM readout is then displayed in the LCD (79). To return to the automatic BPM counter, press and hold down the TAP BUTTON for at least 2 seconds and then release.

64. DRY/WET DIAL - This knob is used to increase or decrease the selected effect, and controls the amount of effect applied to the input source. If the dial is turned all the way clockwise (wet), 100% of the effect will be heard. If the dial is turned all the way counter-clockwise (dry), then no effect will be heard.

65. DEPTH FEEDBACK KNOB - This knob is used to adjust the parameter ratio value.

66. P.S.P (PRE SET PARAMETERS) BUTTON - This button is used to activate the effect preset parameters, and to store your own preset parameters. Each effect comes with 12 preset parameters, this button accesses the presets. Once you have pressed the button to activate the presets, turning the TIME ARRAY DIAL(67) will let you search through the 12 different presets. The CUE BPM/DEPTH FEEDBACK DISPLAY(74) will indicate the preset. Once you find the preset that you want, simply press the TIME ARRAY DIAL(67) to activate that preset.

STORING YOUR OWN PRESET PARAMETERS.
1. Set the beat delay time with the Beat button (69) to 0/0.
2. Select the effect and set the parameters for that effect.
3. Press and hold the P.S.P Button for 5 seconds, until the Cue BPM/Depth Feedback display flashes with #1, and the Time Array display flashes “Save.”
4. If you turn the Time Array Dial, it will scroll through numbers 1-12 and then finally to “DF.” Choose a number to save your preset parameter under, and press the Pre Set Parameter button to save.
5. To erase your preset parameter follow steps 1-4, but instead choose “DF.” This will automatically change all preset parameters back to factory settings. Note: You cannot set the presets when the XFader FX is activated.

67. TIME ARRAY DIAL - This knob is used to adjust the parameter time value. It is also used to search through the effect presets, and activate the preset.

68. INPUT SELECT - This knob is used to select a channel in which to apply effects.

69. BEAT BUTTON - This button is used to set the delay time of an effect to the beat of music.

70. FX CUE BUTTON - The button activates and deactivates the FX “CUE” mode, the same as PFL button (19).

71. FLANGER/PITCH SHIFT BUTTON - This button is used to activate and deactivate either the
FLANGER or PITCH SHIFT effect. When the FLANGER effect is activated the button will glow green, when the PITCH SHIFT effect is activated the button will glow red. The FLANGER effect distorts the output signal and creates an effect similar to frequencies phasing in and out of each other. The PITCH SHIFT effect can increase or decrease the playing speed. The effects have two adjustable parameters, Time Array (TA) (67) and Depth Feedback (DF) (65).

72. **TRANS/PAN BUTTON** - This button is used to activate and deactivate either the TRANS or PAN effect. When the TRANS effect is activated the TRANS/PAN BUTTON will glow green, when the PAN effect is selected the button will glow red. The TRANS effect simulates a real-time mixer transformer effect. The PAN effect allows you to pan the output from the left channel to the right channel. The effects have two adjustable parameters, Time Array (TA) (67) and Depth Feedback (DF) (65).

73. **FX SELECT BUTTON** - The FX SELECT BUTTON allows you to toggle back and forth between the two effects banks. When the FX SELECT BUTTON is glowing green you have access to the top bank of effects which include; trans, filter, flanger, and echo. When the FX SELECT BUTTON is glowing red you have access to the bottom bank of effects which include; pan, pitch shift, phase, and delay. To toggle to the next bank of effects press the FX SELECT BUTTON more then once.

74. **CUE BPM/DEPTH FEEDBACK DISPLAY** - The CUE BPM display measures the BPMs of the cued channel. The Depth Feedback digital display will indicate the parameter ratio percentage. Turning the DEPTH FEEDBACK KNOB (65) in a clockwise direction will increase your ratio percentage. Turning the knob in a counter-clockwise direction will decrease the ratio percentage.

75. **TIME ARRAY DISPLAY** - This display will signify the pitch percentage (speed). Any adjustments will be based on this default setting. Turning the knob in a clockwise direction will increase your pitch. Turning the knob in a counter-clockwise direction will decrease the pitch.

76. **BEAT DISPLAY** - This display indicates the beat ratio that has been set for an effect. The beat ratios are 1/4, 1/2, 3/4, 1/1, 2/1, 4/1, 8/1, and 0/0. **Note: In manual mode, when reading preset parameters, the Time Array will be the direct value that is read, so the delay time of an effect to the beat of music may be inactive.**

77. **AUTO BPM INDICATOR** - When AUTO BPM INDICATOR is highlighted, the unit is automatically counting the BPMs.

78. **DRY/WET DISPLAY** - This display indicates the position of the DRY/WET KNOB (64).

79. **BPM (BEATS PER MINUTE) DISPLAY** - This meter will display the master output BPMs.
Typical Balanced Output Set-up

This image details a typical stereo output layout. Note the use of the Balanced XLR Jacks on both the mixer and the amplifier. Always use the balanced output jacks whenever possible. The balanced output jacks should always be used for cable runs in excess of 15 feet.

Using the balanced jacks will ensure a clean signal throughout the entire audio system.
Due to fog residue, smoke, and dust, cleaning the mixer should be carried out periodically to residue build up.

1. Use normal glass cleaner and a soft cloth to wipe down the outside casing.
2. Use a cleaner specially designed for electronics to spray in and around the knobs and switch. This will reduce small particle built up that can effect the proper operation of the mixer.
3. Cleaning should be carried out every 30-60 days to prevent heavy built up.
4. Always be sure to dry all parts completely before plugging the mixer in.

Cleaning frequency depends on the environment in which the mixer operates (i.e. smoke, fog residue, dust, dew).

The crossfader is “Hot Swapable” which means it may be replaced at any time, even when power is applied. Only replace with American Audio Part Feather Fader Plus. Replacing with any other model fader may seriously damage your mixer.

**Replacing the Crossfader:**
1. Disconnect the mixers main power supply
2. Using a number two Phillips screw driver, unscrew the each of the stainless steel retain screws that hold the crossfader in place.
3. Gently remove the crossfader from its seated position. You may need to wiggle the crossfader slightly to remove it.
4. After removing the crossfader, disconnect the ribbon cable that attaches the crossfader to the PC board. Grasp the crossfader by its base and pull the ribbon cable by its connector not the actual cables. The connector is designed to only fit one way, so don’t worry about the connectors orientation.
5. Connect the new crossfader to the ribbon cable and replace in reverse order.
Trouble Shooting: Listed below are common problems you may encounter, and solutions.

There is no power to the unit:
1. Be sure you have connected the power cord to a correct wall outlet.

There is little or no sound:
1. Check the input selector switch. Make sure it is set to the device that is currently playing.
2. Check to see if the connection cables are connected properly.
3. Check the Trim Output level control on the rear panel, make sure it is not set to low.

The sound is distorted:
1. Check the Trim Output level control on the rear panel, make sure it is not set to high.
2. Make sure that the Gain level control is not set to high.

Crossfader is not working:
1. Check and see if any channels have been assigned to the crossfader.

Effects are not working:
1. Check to see if the effects have been activated. Activate them by pressing the “FX ON” button.
2. Make sure a channel has been selected in which to apply effects to.
3. Make sure that the effect parameter is not set to the minimum.
4. Make sure that the Wet/Dry Dial is not turned all the way counter-clockwise.

Cannot measure BPM, or measured BPMs seem incorrect:
1. Sometimes the BPM cannot be measured, depending on the music. If this happens, you will have to set the BPM manually, by using the TAP button (62). See TAP button (62) on page 16.
The Q-FX19™ carries a one year limited warranty. We recommend you fill out the enclosed warranty card to validate your purchase. All returned service items whether under warranty or not, must be freight pre-paid and accompany a R.A. (return authorization) number. If the mixer is under warranty, you must provide a proof of purchase invoice. You may obtain a R.A. number by contacting our customer support team on our toll free number. Please contact American Audio® customer support at (800) 322-6337 for a R.A. number. All package not displaying a R.A. number on the outside of the package will be returned to the shipper.

1-YEAR LIMITED WARRANTY

A. American Audio® hereby warrants, to the original purchaser, American Audio® products to be free of manufacturing defects in material and workmanship for a period of 1 Year (365 days) from the date of purchase. This warranty shall be valid only if the product is purchased within the United States of America, including possessions and territories. It is the owner's responsibility to establish the date and place of purchase by acceptable evidence, at the time service is sought.

B. For warranty service, send the product only to the American Audio® factory. All shipping charges must be pre-paid. If the requested repairs or service (including parts replacement) are within the terms of this warranty, American Audio® will pay return shipping charges only to a designated point within the United States. If the entire instrument is sent, it must be shipped in its original package. No accessories should be shipped with the product. If any accessories are shipped with the product, American Audio® shall have no liability whatsoever for loss of or damage to any such accessories, nor for the safe return thereof.

C. This warranty is void if the serial number has been altered or removed; if the product is modified in any manner which American Audio® concludes, after inspection, affects the reliability of the product; if the product has been repaired or serviced by anyone other than the American Audio® factory unless prior written authorization was issued to purchaser by American Audio®; if the product is damaged because not properly maintained as set forth in the instruction manual.

D. This is not a service contract, and this warranty does not include maintenance, cleaning or periodic check-up. During the period specified above, American Audio® will replace defective parts at its expense, and will absorb all expenses for warranty service and repair labor by reason of defects in material or workmanship. The sole responsibility of American Audio® under this warranty shall be limited to the repair of the product, or replacement thereof, including parts, at the sole discretion of American Audio®. All products covered by this warranty were manufactured after January 1, 1990, and bear identifying marks to that effect.

E. American Audio® reserves the right to make changes in design and/or improvements upon its products without any obligation to include these changes in any products theretofore manufactured.

F. No warranty, whether expressed or implied, is given or made with respect to any accessory supplied with products described above. Except to the extent prohibited by applicable law, all implied warranties made by American Audio® in connection with this product, including warranties of merchantability or fitness, are limited in duration to the warranty period set forth above. And no warranties, whether expressed or implied, including warranties of merchantability or fitness, shall apply to this product after said period has expired. The consumer's and or Dealer's sole remedy shall be such repair or replacement as is expressly provided above; and under no circumstances shall American Audio® be liable for any loss or damage, direct or consequential, arising out of the use of, or inability to use, this product.

G. This warranty is the only written warranty applicable to American Audio® Products and supersedes all prior warranties and written descriptions of warranty terms and conditions heretofore published.
Q-FX19™

SPECIFICATIONS

Model: Q-FX19 4 Channel Mixer

**POWER SUPPLY:**
AC 115v~60Hz/230v50~60Hz, User Selectable

**DIMENSIONS:**
482mm (W) x 266mm (D) x 105mm (H)

**WEIGHT:**
7 Lbs. / 5.1Kgs.

**CROSSFADER:**
Feather Fader Plus - VCA detecting fader start control -
Low grounding impedance crossfader

**POWER CONSUMPTION:**
12W typical, 20W w/ full headphone output

**HEADPHONE IMPEDANCE:**
16 Ohms

**OPERATING TEMPERATURE:**
5 to 35 deg. C; Humidity: 25 to 85% RH
(non-condensing); Storage Temperature: -20 to 60 deg. C

Input Sensitivity (Level/Impedence):
Note: 0dBV output, load = 100K OHM

**LINE, AUX:**
10K OHM / -14dBV (200mV) +/-2dB

**PHONO:**
47K OHM / -50dBV (3.16mV) +/-2dB

**MICROPHONE 1:**
1K OHM / -54dBV (2mV) +/-2dB

**MICROPHONE 2,3:**
1K OHM / -60dBV (1mV) +/-2dB

Output Sensitivity (Level/Impedence):
Note: 0dBV=1Vrms

**MASTER OUT (XLR):**
600 OHM / 4dBm (1.23V) +/-2dB

**REC OUT (RCA):**
1K OHM / -10dBV (316mV) +/-2dB (Analog)
75 OHM / 0.5V P-P (Digital, Load =75 ohm)

**PHONES:** (LOAD=32 OHMS)
33 OHM / -3dBV (707mV) +/-2dB

Maximum Output:
(LOAD = 47K, THD = 1%)

**MASTER/ZONE:**
MORE THAN +18 dBV (8.0V)

**PHONES:** (LOAD=32 ohms)
MORE THAN +4dBV (1.6V)

**CHANNEL BALANCE:**
WITHIN 3dB from 0 to -40dBV

**Frequency Response:**

**LINE/AUX:**
20 - 20KHz +1 /-2dB

**PHONO:**
20 - 20KHz +1 /-2dB (RIAA)

**MICROPHONE:**
20 - 20KHz +1 /-3dB

**EFFECTS (DRY):**
20 - 20KHz +1 /-2dB

**Noise:** (maximum output) JIS-A weighted

**LINE/AUX:**
LESS THAN -80dBV

**PHONO:**
LESS THAN -70dBV

**MIC 1:**
LESS THAN -66dBV

**MIC 2,3:**
LESS THAN -62dBV

**EFFECTS (DRY):**
LESS THAN -70dBV

**THD - Total Harmonic Distortion:** (MASTER = 0dBV OUTPUT, w/ 20KHz LPF):

**LINE:**
LESS THAN 0.02% 20 - 20KHz

**EFFECTS (DRY):**
LESS THAN 0.05% 20 - 20KHz

**CROSS TALK:**
(MASTER = 0dBV OUTPUT)

**LINE:**
-70dB OR LESS AT 1KHz BETWEEN L AND R

-70dB OR LESS AT 1KHz BETWEEN CHANNELS

**Channel Equalizer:**

**BASS:**
+12 ±1dB,-30 ±2 dB at 70KHz

**MID:**
+12 ±1dB,-30 ±2 dB at 1KHz

**TREBLE:**
+12 ±1dB,-30 ±2 dB at 13KHz

**Microphone Equalizer:**

**BASS:**
+12 /-12 ±2dB, at 70KHz

**MID:**
+12/-12 ±2dB, at 1KHz

**TREBLE:**
+12 /-12 ±2dB, at 13KHz

**TALKOVER:**
- 14 dB +/- 1dB