USER GUIDE

AUDIO-POD

Microphone Control and
Integrated Headphone
Amplifier System with IFB

Version 1.0

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Overview:

The “Audio-Pod System with IFB” is a microprocessor controlled Microphone On-Off control system with an integrated headphone amplifier and IFB transmit capabilities which is ideal for remote and talk studio applications. The buttons are all top mounted to avoid the necessity of chasing the unit around the table top while attempting to depress them. The latching Microphone On-Off circuitry incorporates a high quality, low noise pre-amplifier with switched 48VDC phantom power. A “Talk-Back” button applies balanced audio output from the microphone circuitry to the rear terminal strip IFB terminals while muting the announcers microphone (if on) until the Talk-Back button is released. “Cough” muting is controlled by depressing the “Mic ON” button.

The Audio-Pod system consists of from one to four Audio-Pod modules and a Power Supply. One Power Supply will supply power for up to four Audio-Pod modules, and the modules may include any of the available variety of options. 10 foot Power Supply cables, mounting screws for the power supply module and a trimpot adjustment tool are supplied.

Optional permanent table top tilt mounting brackets for the Audio-Pod modules are also available.

The Microphone circuit and Mic on-off control portion includes the following features:

- Large LED differentially lighted Mic-On and Mic-Off and constantly lit Talk-Back long life reed type silent push buttons
- Cough-mute function integrated with Mic-On button (Operational with local control mode enabled)
- Local Mic On-Off feature may be disabled and controlled remotely
- Remote control of Mic on-off function with a logic low or contact closure may be accomplished with either local control enabled or disabled
- Microphone XLR in and XLR out connectors as well as Eurostyle screw terminal termination of Mic out connection for permanent installations
- Solid State Relay driving voltage, continuous or flashing, to drive a DME Solid State Relay Pack or customers own solid state relay for ON-AIR lamps or for external LED indicator (multiple Audio-Pod SSR outputs may be connected in parallel in the continuous mode only)
- Precision metal film resistors used throughout audio chain for low noise and stability
- Quality low noise mic preamp with user adjustable rear panel variable gain control with outputs ranging from mic to line level
- Balanced IFB audio output supplied at the rear terminal strip which follows the microphone gain setting
- Main microphone output is muted while the Talk-Back button is depressed
- Phantom power supplied with rear panel switch and LED indicator

The integrated headphone amplifier section includes the following features:

- Voltage Controlled Amplifier (VCA) circuitry employed (no “dirty” pots)

- Power Op-Amp headphone output providing both the power and P-P voltage required to drive headsets ranging from 8 to 600 ohms
- Rear panel output phase switch (0-180^{O}) to address bone conduction cancellation issues sometimes experienced by users
- ESD protected front panel 3.5mm and ¼" stereo headphone output jacks
- Rear panel maximum headphone gain set control to restrict the maximum headset output to prevent possible hearing damage and liability issue avoidance
- Single ended L&R headphone inputs via a rear panel 3.5mm jack
- Precision metal film resistors used throughout the audio chain for low noise and stability

Installation:

1. Mount the Power Supply within 10' of the Audio-Pod location. Mounting may be table top or under the desk mounting using the supplied mounting screws and "keyhole" slots located on the bottom of the power supply cabinet. (3" center to center mounting holes) Orientation may be in two different axes depending upon user preference.
2. The Audio-Pod modules are normally desk top mounted using the supplied rubber feet. If the optional table top tilt mounting bracket is used, refer to the installation instructions that accompany it.

Fig. 1

3. Connect the Power Supply to the Audio-Pods using the supplied 10ft. 8 pin Mini-Din cables. The orientation of the connector has the flat side facing the top of the enclosures. **IMPORTANT:** Assure that the Mini-Din connectors are fully engaged with the sockets. Insert, wiggle and press firmly! Failure to completely insert the power cables will result in hum or non-operation of the Audio-Pod module.
4. Connect the microphone XLR in and out connectors to the respective receptacles. A more permanent wire output connection, balanced or unbalanced, may be made using the Eurostyle screw terminal connector "MIC OUT +", "MIC GND", and "MIC OUT –" terminals.

5. Connect the single ended headphone inputs to the 3.5mm “PHONES IN” connector, (left=tip, right=ring, common=sleeve).
6. If desired, connect the “SSR/LED out” and the “GND” terminals to your DM Engineering Studio Solid State Relay or users’ solid state relay (3-15VDC input) for lighting incandescent ON AIR or RECORDING lights. Outputs may be connected in parallel for multiple Audio-Pods driving one SSR if all modules are set for constant SSR operation. **IMPORTANT:** Maintain SSR output polarity considerations between the Audio-Pods or damage may result. If multiple Audio-Pod SSR outputs are used for driving a single LED indicator, a 220 ohm series resistor between the positive outputs and the LED is recommended. See note at the end of the “OPERATION” section below.
7. If desired, connect the remote control wiring to the “RMT CONT ON/OFF” and “GND” terminals. Either a logic low or contact closure will turn the microphone on. A logic high or open contact will turn the microphone off unless local control has it locked on. It is recommended that an “open collector” logic interface or isolated normally open contacts be used.
8. The “LOC CONT ENABLE” jumper that is connected to “GND” with the factory installed jumper enables the front panel push buttons and “COUGH” function. To disable the local microphone on-off switch and cough functions, remove the jumper between the “LOC CONT ENABLE” and “GND” terminals. The Mic ON-OFF function will now only work using the remote control input.
9. If phantom powered microphones are to be used, set the “PHANTOM POWER” switch to the “ON” position. (switch to the left position) The amber LED will indicate that phantom power is on. This switch setting may be changed at any time without causing a damaging “thump” in the output.

Setup

Connect the AC power cord to an 115VAC outlet. The LED indicator on the power supply should light as well as the “MIC OFF” and “Talk Back” buttons on the Audio Pods.

1. The Audio-Pod microphone gain is factory preset for the average Condenser microphone and there may not be need for any adjustment. If the gain is set too high the rear panel “MIC GAIN” control setting will need to be reduced.

    A. If a Condenser or Electret type of microphone is being used turn the Phantom Power switch to ON. The LED indicator will light when the switch is in the ON position. It is advisable to disable the phantom power supplied by the mixing console unless other such microphones are being used directly connected to the console. The presence of up to 48 volts DC on the output of the Audio-Pod will do no damage.
    B. Set your mixing console for normal input and output, press the Audio-Pod Plus “MIC ON” button. Adjust the “MIC GAIN” control, using the supplied trimpot tool, counter-clockwise (less gain) for the proper VU indication on your console. Note that the “MIC GAIN” control is very sensitive to adjustment at the most clockwise end of its range.
    C. **IMPORTANT:** Due to the large amount of available gain in the Mic pre-amp section it is possible to overpower the FET Mic On-Off switching circuit if the “MIC GAIN” control is set for *excessive* gain. To assure that you have not exceeded the capabilities of the switch, press the “MIC OFF” switch and speak loudly into the microphone. If modulation peaks cause

an output you have the gain set too high and it should be reduced accordingly.

Headphone Section:

1. Insert the headphone jack into the appropriate “Phones” receptacle. The rear panel “PHONES MAX GAIN SET” is factory pre-set to about mid range and may be adjusted to the users desired maximum level.
2. To reset the maximum headset level, have the headset audio input source active, slowly adjust the front panel “GAIN” control to maximum while using the trimpot adjusting tool to set the rear panel “PHONES MAX GAIN SET” to the maximum level that you feel is safe for the user. This feature is included to protect the user from possible damaging volume levels to their hearing which may lead to possible litigation in the future.

WARNING: Listening to earphones too loudly may cause hearing loss. To prevent hearing loss, adjust the volume to comfortable levels and avoid prolonged use.

Operation:

The Audio-Pod Plus front panel control functions are as follows:

MIC ON (COUGH): Turns on the microphone function (latching) and displays a brighter switch illumination on the active button. Depressing and holding this button while in the “ON” position will mute the microphone output.

MIC OFF: Turns off the microphone function. The OFF button will illuminate brighter.

TALK BACK: Applies balanced microphone audio to the “IFB” terminals on the rear terminal strip while muting the main microphone output until the button is relased.

GAIN: Sets the headset gain and is adjusted by the user to a comfortable volume level.

PHONE JACKS: Both ¼” and 3.5mm stereo headphone jacks are supplied. The jacks are connected in parallel and employs ESD protection circuitry for protection from static build-up on the earphone plug that is being connected.

The Audio-Pod Plus rear panel headset control adjustments are as follows: (refer to Fig. 1)

PHASE: Depressed for 180° phase shift in the headphone output to correct for bone conduction issues that may arise, and left in the outermost position for 0° phase shift.

PHONES MAX GAIN SET: Factory pre-set to approximately mid range and may be adjusted to the users desired maximum level. (Refer to headphone section setup instructions above.)

All other rear panel connections and functions are discussed in the *INSTALLATION* section starting on page 3.

Note: The SSR output mode may be changed between continuous and flashing by moving an internal jumper located on the lower microphone PCB. ***It is imperative that the “PHASE” switch be depressed prior to opening the Audio-Pod enclosure or damage to the switch will result.***

Warranty Information:

The DM Engineering Audio-Pod Plus system is warranted for a period of one year from the date of purchase. This warranty covers materials and workmanship only. Any misapplication, physical or electrical damage from outside sources or by the customer is not covered. For factory warranty repairs, the customer must pay shipping costs to the factory, and DME will pay standard ground transportation shipping costs to return the warranted equipment to the customer. Any priority shipping costs are to be the responsibility of the customer as ground service only is standard. Please contact the factory for an RMA number prior to any returns. Items returned without an RMA may be sent back to the customer unopened.

Technical Support

If you have questions, experience difficulties with the product or require further information please contact DME at: 805-987-7881, toll free 800-249-0487, or E-mail technical support at: support@dmengineering.com, or visit www.dmengineering.com for the latest User Guide.

Specifications:

Case dimensions: Audio-Pod module and Power Supply: 5.09" W X 5.95" L X 2.2" H
Case material and color: ABS flame retardant plastic, black
Power supply to Audio-Pod DC power connection method: 8 pin mini-din connector
AC input operating voltage: 105-125 VAC, 60 Hz
Solid State Relay drive output voltage: 5VDC current limited by 330 ohms
Microphone and talk-back buttons: Silent long life reed type with differential LED illumination for microphone on-off functions
Microphone input impedance: 150-250Ω
Microphone pre-amplifier output impedance: 600Ω (balanced)
IFB output impedance: 600Ω (balanced)
Microphone user gain adjustment: > 43dBm (overall gain=58dBm)
Microphone pre-amplifier absolute maximum output level: +20dBu
Headphone gain control circuitry: VCA (voltage controlled amplifier)
Headphone amplifier input level: Stereo L & R, -20dBu to +4dBu
Headphone amplifier input impedance: 10KΩ
Headphone output: (ESD protected) 160MW per channel, 20VP-P max per channel).
Power supply AC cord length: approx. 6 ft. total
Power interface cables: 10 ft. 8 pin mini-din M-M
Mounting method: Power supply and Audio-Pod modules are supplied with rubber feet. Screws for “key hole” type mounting of the power supply are supplied. An optional desk-top mounting bracket for mounting the Audio-Pod at an angle is available.
Operating temperature: 32 to 110F
Humidity: 0 to 95% non-condensing