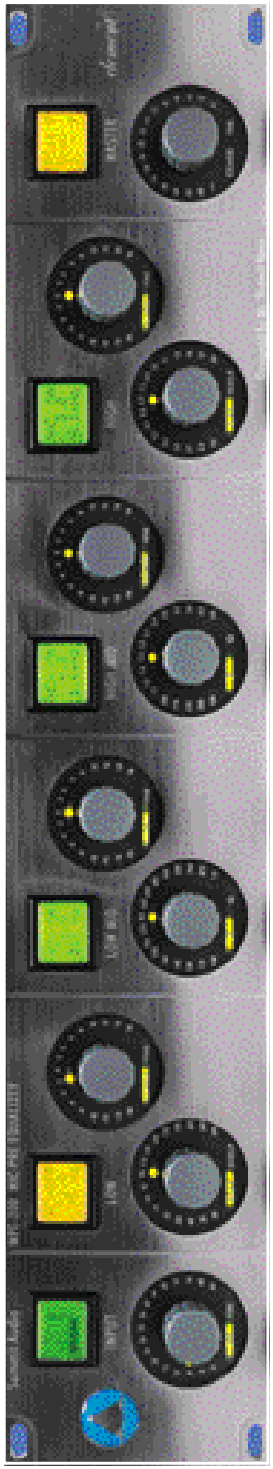

Element 78

MPE-200

by Summit Audio

Guide To Operations

for software version 1.23

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1. UNPACKING AND CONNECTING

1.1 Carefully unpack the unit and report any shipping damage promptly to your Summit dealer and to the carrier.

1.2 The MPE-200 is normally shipped set up for 115 volt AC (100-125 volts is OK).

For 200-250 volt AC operation, the rear panel voltage selector should be set to 240v. Do NOT use the 230 volt setting. The fuses should be slow-blow type, 0.8 amp for 100-125v or 0.4 amp for 200-250v.

For more information on fuses and voltage selection, see section 8 at the back of this manual.

1.3 Turn the unit on by using the rocker switch at the rear power entry. For rack mounting, leave this power switch on, and use the front panel Sleep control to turn off or on. See section 7 for details.

1.4 Due to its Class A circuit design, the MPE-200 will run warm. Its quiet, low-speed fan ensures safe operation over a wide range of ambient temperatures.

Be careful not to block the vent holes on the right side panel or the fan opening on the rear of the MPE-200.

1.5 AUDIO INPUT / OUTPUT SPECIFICATIONS

Mic In:	Impedance	10k ohms
	Maximum input level	+21 dBu (at 0 gain)
Line In:	Impedance:	10k ohms
	Maximum input level	+21 dBu (at 0 gain)
Outputs:	Maximum level	+24 dBu
	(internal jumper installed)	+28 dBu

Mic and Eq inputs and outputs are all balanced and floating, using standard 3-pin connectors on the rear panel.

1.6 AUDIO INPUT CONNECTIONS

To feed MPE-200 inputs from unbalanced equipment, connect signal to pin 2, and connect pin 3 to pin 1. Use caution if connecting unbalanced signals to the Mic inputs. Incorrect or missing ground can result in noise or oscillation which might damage your equipment or your hearing. Input cables must have a shield connected to pin 1.

Before connecting an unbalanced or line level signal to a Mic input, check that the Mic gain is set to zero, and that +48v phantom power is disabled. Do not exceed the specified maximum input level.

1.7 AUDIO OUTPUT CONNECTIONS

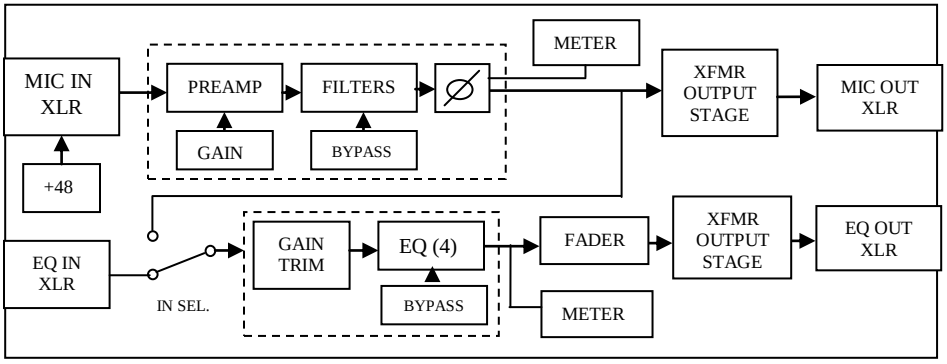
The Mic Pre outputs are always active. When Eq In is selected, you can insert external equipment between the Mic Pre outputs and the EQ inputs. See section 3.3 for details.

All outputs are balanced and transformer isolated. If you are connecting the MPE-200 outputs to unbalanced inputs of other equipment, connect the unused signal pin to the cable shield at the input of the other equipment, not at the output of the MPE.

2. SYSTEM OVERVIEW

2.1 The MPE-200 provides two independent channels which can be controlled separately, or as a stereo pair. See section 5.4 for details on selecting the channel mode.

2.2 The Signal flow of one channel is shown below. Note that the gain trim is in front of the EQ modules, and that the output meter tap is before the fader. These facts are important for proper operation of the MPE-200.

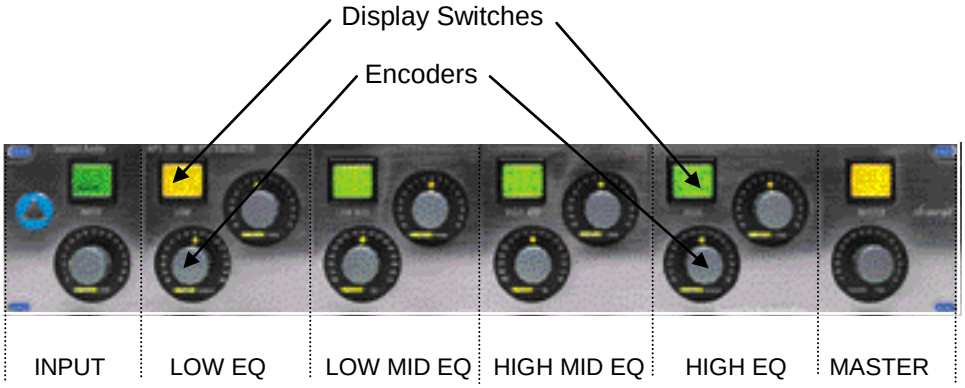


Signal Flow of an MPE-200 Channel

SYSTEM OVERVIEW (ctd)

2.2 The MPE-200 has six control modules which are labeled on the front panel. The outer two modules control Input functions (mic gain, HP/LP filters, and setup) on the left, and Master functions (gain trim, presets, setup and fader) on the right. The four remaining modules control each of the four equalizer bands, which are post mic preamp. The EQ may be used separately from the mic preamps which have their own outputs.

2.3 The MPE-200 uses two types of controls: Display Switches, and Encoders. In general, pressing the display switch changes the screen to a new mode. Turning the encoder changes the parameter value, and pressing the encoder knob selects the parameter associated with that encoder. The display screen backlight color is used to convey status for each module, but this information is also contained in the screen contents, to accommodate users whose color perception is impaired.



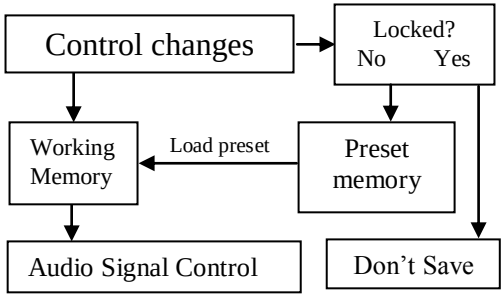
2.4 CHANNEL STATUS

Channel status is displayed by a lock icon, showing preset unlocked or locked status, as well as channel and EQ selection.

- Channel selected or EQ on, preset unlocked
- Channel selected or EQ on, preset locked
- Channel unselected or EQ off, preset unlocked
- Channels unselected or EQ off, preset locked

These icons also show what is being controlled by the associated encoder(s). When a preset is unlocked, all changes made to that preset will automatically be saved. If the preset is locked, settings can still be changed and the changes will affect the audio path, but these changes will be lost when another preset is loaded or the MPE-200 is turned off.

Preset Memory and Control Flow

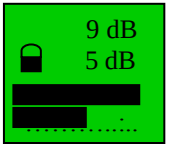


NOTE: A special situation occurs when recalling a preset on a single channel that has the same number as the preset on the other channel. In this instance, the new preset will acquire the settings of the other channel, even if the new preset is locked. For example, say Channel A has preset 1 loaded and it is locked, and channel B has preset 2 loaded. Changes are made to channel A. If preset 1 is now recalled on channel B, the changes made on channel A will also be applied to channel B, even though these changes have not been stored in preset 1 (which is locked). See section 5.3 to learn more about how presets work.

3. INPUT SCREENS

The input controls are located on the far left of the MPE-200. Press the Display Switch to select the Mic Gain, Filter, or Setup screens; press the Encoder Knob until the desired item flashes and rotate the knob to modify the selected item.

3.1 MIC GAIN screen (green).



Chan A gain
Chan B gain
Chan A level
Chan B level

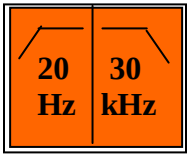
Mic gain for Channel B selected, preset for Channel B locked

- The Mic Gain control can apply to either or both channels. The lock icons show which gain(s) are currently being controlled. Pushing the knob selects chan A, chan B, or both channels. Gain offsets can be obtained by selecting each channel individually and selecting a gain amount, then selecting both channels. This operation emulates a clutched stereo analog control in that the offset is removed if both channels are set to minimum or maximum gain.

- The Mic Gain control is always in fine mode, or one dB per click. Note that even in Master stereo mode, individual mic gain adjustments are possible, and both mic gains are stored in a single preset when used for stereo operation.

- The Mic peak indicator triggers at +18 dBu (entire screen changes to red), or 3 dB before clipping begins. The meter indicates a ranges of –28 dBu to +9 dBu, with a reference level marker at 0 dBu. The A channel level is shown by the upper meter bar.

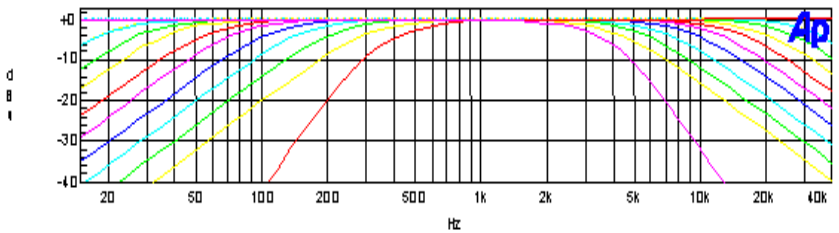
3.2 HP/LP FILTER screen (amber).



Highpass filter at 20 Hz and lowpass filter at 30 kHz selected

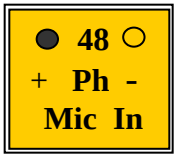
This screen controls the two 12 dB/octave filter sections of the MPE Mic Preamps. Each filter can be highpass or lowpass, and if both are set to the same frequency, the resulting slope is 24 dB/octave. Push the knob to select either filter. Rotate the knob to select the desired frequency, or an off position. When off, these filters are completely removed from the signal path.

[*] **The filter settings shown are applied to the active channels(s) determined by the Master channel selector (see section 5.1), not the channel(s) selected on the mic gain screen.**



MPE Low Pass and High Pass filter characteristics. The innermost curves show the 24 dB/octave slope with both filters set to the same frequency.

3.3 INPUT SETUP screen (yellow).



Chan A phantom power on
Chan B phase inverted 180°
Mic preamp selected to feed EQ input

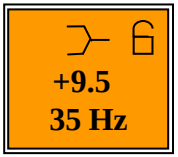
This screen controls 48v. phantom power on or off for each channel; phase + or – for each channel; Mic or Eq input to both Eq channels. Push the knob to select the desired function; rotate the knob to modify the setting.

- An open circle indicates +48v is off; a filled circle is +48v on.
- The minus sign (-) means the Mic Pre phase is inverted.
- The input selection (Mic or Eq) selects what is feeding the Eq.

The input selection and phase are retained if the power is cycled, but the phantom power settings are not saved and default to off as a safety feature.

When **Mic In** is selected, the output of each preamp is routed to the corresponding Eq input; if **Eq In** is selected, the Eq inputs on the back of the MPE-200 are routed to the Eq. Both channels are switched together. The direct outputs of the Mic preamps are always live. This allows the MPE-200's preamps and Eq's to be used separately. If **Eq In** is selected, you can also insert external equipment such as compressors between the Mic Pre outputs and Eq inputs of the MPE-200.

4. EQUALIZER SECTION



Channel B LF filter is OFF (amber), shelving, preset unlocked, with 9.5 dB added at 35 Hz

4.1 EQUALIZER OVERVIEW

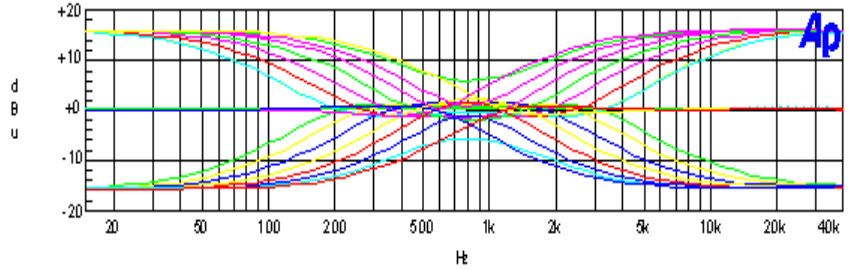
The MPE-200 has four bands of Eq, each of which can be selected either ON (green) or OFF (amber) by pressing each display. The on/off state of each Eq band is also shown by the lock icons on its display. A lock icon on the left of the display refers to the "A" channel, with the state of the "B" channel shown on the right. When off, the filter circuit is completely removed from the signal path.

4.2 BOOST / CUT CONTROL

The Eq Boost/Cut control is to the right of each filter display. The range is ±16 dB, in coarse (2 dB) steps or fine (0.5 dB) steps. Pressing the encoder knob switches between coarse and fine control, and the LEDs below the knob show the current control mode.

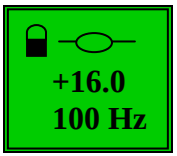
4.3 FREQUENCY CONTROL

Frequencies are selected by rotating the encoder knob below each Eq display. For High and Low Eq, peaking or shelving can be selected by pressing the frequency knob. In either case, the filter slope is fixed at 12 dB/octave.

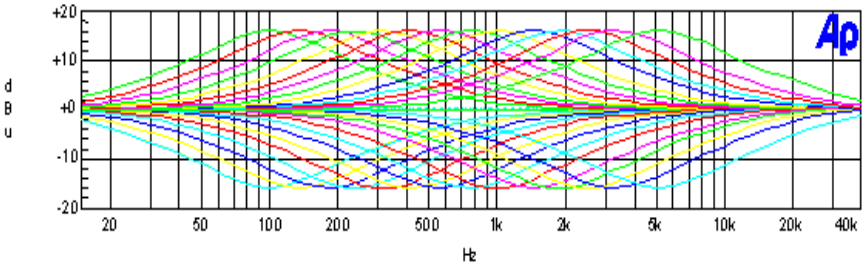


MPE Shelving filter curves for LF and HF EQ

4. EQUALIZER SECTION (ctd)



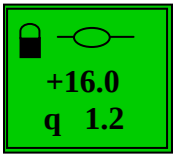
Channel A peaking Eq on (green) preset locked, 16 dB gain applied at 100 Hz



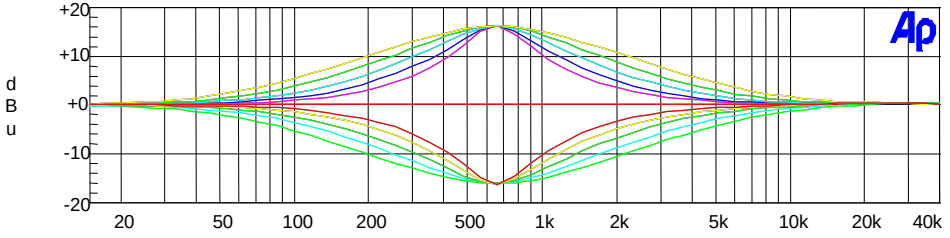
MPE Peaking filter curves, showing the range of frequencies for LMF and HMF EQ bands

4.5 Q CONTROL

Low-mid and High-mid EQ sections are parametric peaking filters. Filter Q adjustment is accessed by pressing the frequency encoder knob. The range of control is 0.6 (1.6 octave) to 2.0 (0.5 octave). A higher Q number represents a sharper or narrower bandwidth filter. The encoder led pointer always shows the frequency, even when Q is being adjusted.

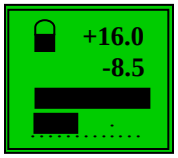


The same filter settings, showing the Q, or bandwidth adjustment



5. MASTER SCREENS

Press the Master LCD Display Switch on the far right side of the MPE-200 to select Gain Trim, Preset, Setup, or Fader screen.



Channel A selected, preset locked, with 16 dB gain
Channel B has 8.5 dB cut applied.
Channel A Eq In level
Channel B Eq In level

5.1 MASTER CHANNEL SELECT

[*] **If the MPE-200 is in 2-channel mode, pressing the knob switches the control of gain trim, all Eq modules, and the Mic filters between channel A and channel B. All the displays change to show the settings of the selected channel. If Stereo mode is set, both channels are controlled at once**

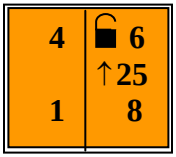
If both channels have the same preset number loaded, the MPE-200 behaves as if in stereo mode. Set each channel to a different preset for 2-channel mode. See section 5.3 for details concerning presets.

The EQ Output Meter and peak displays are also on this screen, with the meter reference line at 0 dBu, and a peak indicator level of +18 dBu which flashes red when 3 dBu below clipping.

5.2 EQ GAIN TRIM

Turning the encoder sets gain of ±16 dB for each channel. The adjustment occurs in the signal path before the EQ modules. If there is a substantial amount of EQ boost, reduce the EQ gain to prevent overload of the EQ circuits. Conversely, if there is much EQ cutting, add some positive trim to maintain output level.

5.3 MASTER PRESET screen (amber)



Channel B is the active channel, preset 6 selected and unlocked, with preset 25 waiting to be loaded; preset 8 is the previous preset for Channel B.

There are 25 user presets which store all settings and controls except input setup and the output fader. Each channel has a preset, whose number is shown on the top row of the Preset screen, along with the lock status. Select a preset by turning the knob, and load it by pressing the knob. A flashing arrow will always show the pending preset selection.

If the preset selected is the same number as the current preset, the pending preset number changes to the last previously loaded one. Thus, by repeatedly pressing the knob, you can alternate between any two presets, for direct comparison.

If the MPE-200 is set to Stereo mode, a single preset is loaded simultaneously for both channels, as shown on the preset page. You can also manually select the same preset for both channels while the MPE-200 is in 2-channel mode. In this state, all the controls will operate as if in stereo mode, but changing presets is a bit cumbersome. When changing from Stereo mode to 2-channel mode, the MPE-200 will enter this state.

[*] **Any changes made to the settings while an unlocked preset is selected will be automatically stored. Any changes made to a locked preset will be lost when another preset is loaded or when the MPE-200 is turned off.**

See the next section for details on locking and unlocking presets.

5.4 MASTER SETUP screen (yellow).

Presets A and B unlocked
2 channel mode selected,
Fader disabled

Master Setup functions include preset locking, channel mode, and fader enable. Press the encoder knob to select the desired function and turn the knob to change the parameter value.

Preset Locking

To lock and unlock presets, turn the encoder knob while the lock icon is blinking. Press the encoder knob to select either channel. If Stereo mode is selected or if presets A and B are identical, both lock icons will be selected.

When a preset is changed from locked to unlocked, changes made while it was locked will NOT be stored; only changes made while the preset is unlocked will be stored in the preset memory.

Channel Mode

The channel mode controls the basic configuration of the MPE-200. When set to Stereo, all the Eq controls operate equally on both channels. The Mic gains can still be set separately, but both gains are part of a single preset. See Section 3.1 for details. When the channel mode is set to 2-Chan, each of the A and B channels has its own Eq and gain settings, stored in separate presets.

To adjust the channel mode, turn the encoder knob while the Stereo / 2-Chan icon is blinking. When changing from 2-Chan to Stereo mode, channel B inherits the current settings of channel A, even if either or both presets are locked.

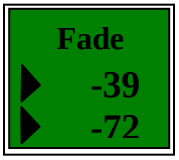
The channel mode is not part of the preset memory and is not affected by the lock state, but is saved when power is turned off.

MASTER SETUP (ctd)

Fader Enable

The last item of the Master Setup screen enables the Fader screen. If set to No Fade, the Fader Screen is bypassed, and the Fader attenuator is set fully on (0 dB). Push the knob until No Fade/Fader is blinking, and turn the knob to enable or disable the Fader page.

5.5 OUTPUT FADER screen (dark green).



Fader screen

Channel A has 39 dB of attenuation
Channel B has 72 dB of attentuation
Both channels are enabled for Fade

The output fader approximates a standard fader curve, with –20 dB occuring at mid-scale. The fader is always in fine mode, with 64 steps covering the full range.

[*] **The precision attenuator is after the meter and peak sensing in the signal path, so it should always be set to "0" unless doing a fade.**

Pressing the knob selects either or both channels to fade. Each channel can be controlled separately, even if the Master channel mode is Stereo, and any offset is retained when switching back to stereo fade. Settings are not stored and will be discarded when the fader is disabled, or when a new preset is loaded.

6. MIDI

The Musical Instrument Digital Interface is an industry-wide standard system for conveying musical and audio control data between devices of many types, including keyboards, samplers, signal processors, and audio mixers. Standard MIDI cables are available at most music stores.

The MPE-200 has three standard rear panel MIDI connectors:

- MIDI IN receives data into the MPE from other devices such as computer sequencers, suitably equipped mixers and controllers, or another MPE.
- MIDI OUT sends data from the MPE-200 to compatible devices.
- MIDI THRU sends out an exact copy of the signal at the MIDI IN jack. Think of it as a built-in 'Y' connector.

MPE v1.23 has a basic MIDI implementation, supporting save and recall of entire presets for storing, recalling, and linking of multiple MPE units. Every time a preset is loaded, a SysEx message containing the preset just loaded is sent to the MIDI output. This SysEx message can be recorded on a SysEx librarian or sequencer, to store the preset data. You can also connect two MPE-200's directly together by MIDI.

In all cases, the receiving MPE-200 must have the preset page selected, and the preset must be unlocked. The received data will be stored into the currently selected preset location, not the one corresponding to that of the sending unit.

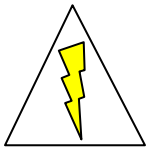
All other MIDI messages, including program change and continuous controllers, will be ignored.

7. SLEEP MODE

The MPE-200 can be turned off from the front panel by pressing and holding the Master display, then with the Master screen held, press the Input display for one second. This turns off the analog power and displays a flashing green beacon as a reminder that the MPE-200 is only sleeping. To wake it up, press the Input display for ½ second.

8. FUSE AND VOLTAGE SELECTION

The main fuse and the voltage selector are part of the Power Entry module on the rear panel of the MPE-200, where the power cord connects. The fuse will only fail if there is a circuit fault. If the MPE-200 shuts down unexpectedly, or fails to turn on, first confirm that it is connected to a source of the correct voltage.



CAUTION: Disconnect the power cord from the MPE-200 before attempting fuse inspection or voltage selection!

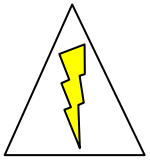
8.1 FUSE INSPECTION OR REPLACEMENT

Remove the rectangular fuse holder by gently prying at the notch with a small screwdriver or paper clip. Use only **slow-blow** fuses of these types and values:

For 90-125 volt, use two 0.8 amp fuses type IEC 127-2
For 200-250 volt, use two 0.4 amp fuses type IEC 127-2

The fuse should only fail if there is an internal circuit fault in the MPE-200. If you find a blown fuse, please contact Summit Audio Customer Service before attempting replacement.

8.2 VOLTAGE SELECTION



Changing the supply voltage requires some mechanical dexterity. If you have any doubt about your mechanical abilities, please contact your Summit dealer for assistance.

1) Using a long-nose pliers, gently pull the voltage selector tab out of the right end of the Power Entry module.
2) Carefully move the white plastic key around the side of the selector tab, until it faces AWAY from the desired voltage legend printed on the tab.
3) Push the plastic key gently into the locating notch in the edge of the tab. Double check that the voltage printed on the edge of the tab away from the key is the one you want.
4) Carefully insert the selector tab back into the slot at the right side of the Power Entry module, with the white plastic key facing away from the MPE-200 and the printed voltage legend on the side of the tab toward the fuse holder. Firmly push the tab into the slot until it seats.
5) Install the correct value fuse for the voltage you have chosen. See section 8.1 for these values. Replace the fuse holder and gently press it until it clicks.
6) Inspect the white dot which shows through the fuse holder and confirm that the voltage setting is what you want.

9. REGISTRATION

Thank you for purchasing the MPE-200. Please fill out and return the enclosed warranty card. When you register the unit, Summit Audio will better be able to notify you of manual, firmware, and MIDI upgrades. This unit must be registered for the extended three year warranty to be in effect.

Please do not hesitate to phone, fax or e-mail Summit Audio with any questions or comments. Many thanks from the Element 78 group of Summit Audio.