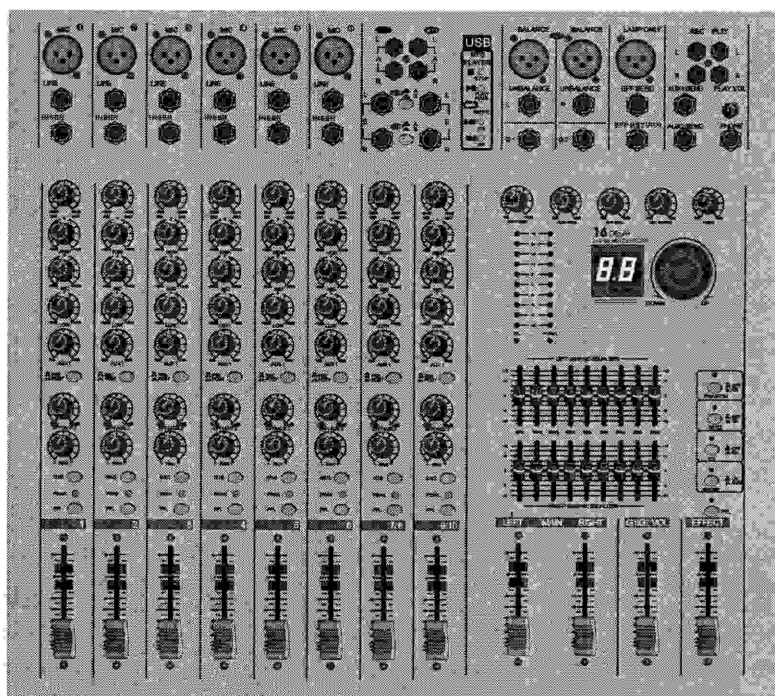


D1100

*voice*  
**BIG**  
DESIGN BY GERMANY



# PROFESSIONAL MIXER CONSOLE

## OWNER'S MANUAL



**Suitable For: 6ch 8ch  
10ch 12ch 16ch  
Mixer**

# IMPORTANT SAFETY INSTRUCTIONS

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
<b>WARNING:</b> TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. <b>AVIS:</b> RISQUÉ DE CHOC ELECTRIQUE. NE PAS OUVRIR.		
<b>WARNING:</b> CONNECT ONLY TO MAINS SOCKET WITH PROTECTIVE EARTHING CONNECTION.		



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.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not cover any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or the grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for a long period of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
15. To completely disconnect this equipment from the AC Mains, disconnect the power plug from the AC receptacle.
16. The mains plug of the power supply cord shall remain readily operable.

## IMPORTANT SERVICE INSTRUCTIONS

**CAUTION:** These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

1. Security regulations as stated in the EN 60065 (VDE 0860 / IEC 65) and the CSA E65-94 have to be obeyed when servicing the appliance.
2. Use of a mains separator transformer is mandatory during maintenance while the appliance is opened, needs to be operated and is connected to the mains.
3. Switch off the power before retrofitting any extensions, changing the mains voltage or the output voltage.
4. The minimum distance between parts carrying mains voltage and any accessible metal piece (metal enclosure), respectively between the mains poles has to be 3 mm and needs to be minded at all times. The minimum distance between parts carrying mains voltage and any switches or breakers that are not connected to the mains (secondary parts) has to be 6 mm and needs to be minded at all times.
5. Replacing special components that are marked in the circuit diagram using the security symbol (Note) is only permissible when using original parts.
6. Altering the circuitry without prior consent or advice is not legitimate.
7. Any work security regulations that are applicable at the location where the appliance is being serviced have to be strictly obeyed. This applies also to any regulations about the work place itself.
8. All instructions concerning the handling of MOS - circuits have to be observed.

**NOTE:**



**SAFETY COMPONENT (MUST BE REPLACED BY ORIGINAL PART)**

## DESCRIPTION

---

**First of all, we would like to thank you and congratulate you to your purchase of a power mixer.**

The PowerMate compact power mixers incorporate profound know-how, based on our research, development and inter-communication with our customers in the professional audio market, for decades. With a PowerMate you own a power mixer that offers a wide range of functionality in a very compact frame. Forget about the troubling experiences with cabling and matching mixers, amplifiers, FX units, and equalizers. You now own a device with optimally matched components. The mixer's ergonomic console shape and clearly structured controls provide perfect overview for instant access at all times. A gooseneck litlight can be easily plugged into the provided socket to compensate for insufficient lighting conditions. Also during the transport you will quickly learn to appreciate the PowerMate's superiority: recessed handles on the sides, compact dimensions and low weight, plus the sturdy cover that protects the controls from being damaged. However, if you would rather like to install your PowerMate 1000 in a 19" rack shelf, no problem, The only thing you have to do is to replace the plastic side panels by a pair of metal rack mount ears. Through its multiple functions, its high dynamic capacity, and extremely low-noise design in combination with its 24-bit Dual-Stereo effect unit and the high-performance power amplifier, the PowerMate is best equipped for universal use. No matter, whether on-stage, in a home recording environment or in a permanent installation, your PowerMate is the ideal partner to meet your expectations of a professional audio device - effective and reliable. Of course, your want to install and operate your new PowerMate as quickly as possible. Nevertheless, please take the time to do this by means of this user's manual. Starting with input channels, effects and master areas up to the power amp. every section is explained systematically and in detail within this owner's manual. Through the careful perception of the manual you will learn about all functions and find some useful and practical tips for the daily operation of the PowerMate. Even more important, you will find some adjustment guidelines that should be painstakingly carried out; plus the description of a typical sound reinforcement installation, a block diagram, specifications, connection guidelines, etc.... So, take your time and keep on reading.

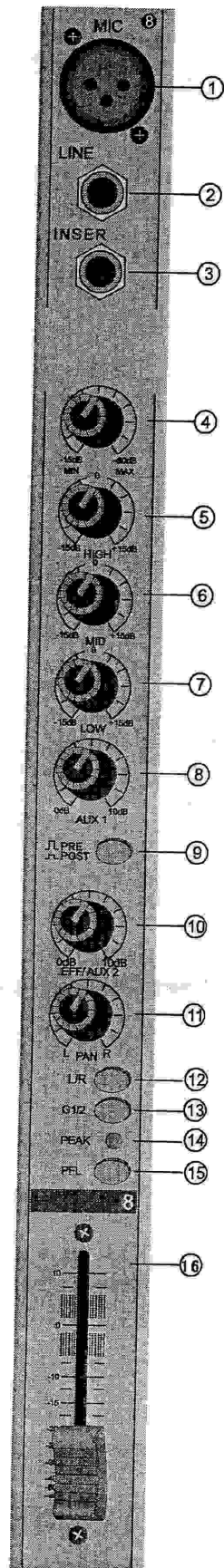
### Unpacking and Warranty

Open the packaging and take out the PowerMate. Remove the FX unit displays' protective foil. In addition to this owner's manual you will find the mains supply cord and the warranty card. Please check, if the warranty registration form is filled out correctly. Only when this form is completed, you will be able to apply for warranty claims. grants 12 months of warranty, starting with the date when you received the appliance from your local dealer. Therefore, we would like to ask you to also keep the original certificate of purchase together with the warranty certificate.

Keeping all papers and the original packaging of the device is generally recommendable, since they come in handy re-selling an appliance.

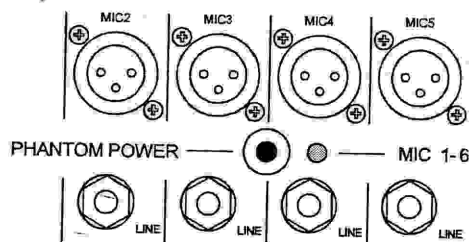
### Installation and Connections

Do not cover the ventilation louvers in the bottom plate of the appliance. Always place PowerMate on an even surface to allow for sufficient airflow during the operation. The device is equipped with electronically controlled ventilators to protect the power amplifier against thermal overload. The direction of the airflow is front-to-rear. Fresh, cold air enters the mixer at its lower front side and warm air leaves the device through the ventilation louvers in the rear panel. Do not cover the frontal or the rear ventilation louvers. Otherwise the PowerMate automatically enters protect mode to prevent thermal overload. While the protect mode prevents that the device is being damaged, regular operation is impossible during the period of time it is activated. In case the PowerMate is installed in a 19" rack system (vertically), you have to allow at least 2 HU of free space above and 1 HU below the mixer. Of course you can cover the empty space with special blind plates that also have ventilation louvers. Before establishing the mains supply connection, please make sure that the device matches the voltage and frequency of your local mains supply. Check the label next to the mains switch. When switching the power on, the internal fans will run for about 2 seconds at full speed to give you an acoustical signal that the PowerMate is ready to be operated. In addition dust particles that might have gotten into the device get blown out. For a secure connection the SPEAKER OUTPUTS on the rear panel of the PowerMate are provided through professional standard high-performance SPEAKON connectors. The pin assignment of these sockets is 1+ (hot) and 1-(cold).



## 1. BALANCE INPUT

Electronically balanced XLR-type inputs for the connection of low impedance microphones like the ones featured in major studio and live mixing consoles. This type of input stage provides extraordinary low noise signal conversion at an extremely low distortion rate (typical <math><0.002\%</math>) even in the high frequency range. Generally, any type of microphone can be connected as long as its pin assignment is in accordance to the diagram shown below. When condenser microphones are connected, you have to press the PHANTOM POWER (MIC 1-6) button, which is located in the input section. The microphone gets its operating voltage (+48Vdc) through the mixer and you can forget about battery replacement times.



**CAUTION:** Always connect the microphones before turning on the phantom power or switching the PowerMate on with phantom power being activated. This is the only way to prevent your microphones from being damaged. Also make sure to engage the STANDBY button in the master section to prevent your self and your environment from nasty power-on noise. Simultaneous connection of condenser type microphones and dynamic microphone models is generally possible with phantom power being activated. Before you do so, please consult the manual of the concerned microphone. The MIC input accepts levels between -60dBu ... +21dBu — depending on the setting of the corresponding gain control. Because of their low impedance design and the phantom power these XLR-type inputs are not suitable for cascading other mixing consoles or the connection of FX units, keyboards or other electronic equipment. When connecting this kind of equipment, please use the LINE level inputs.

## 2. LINE INPUT

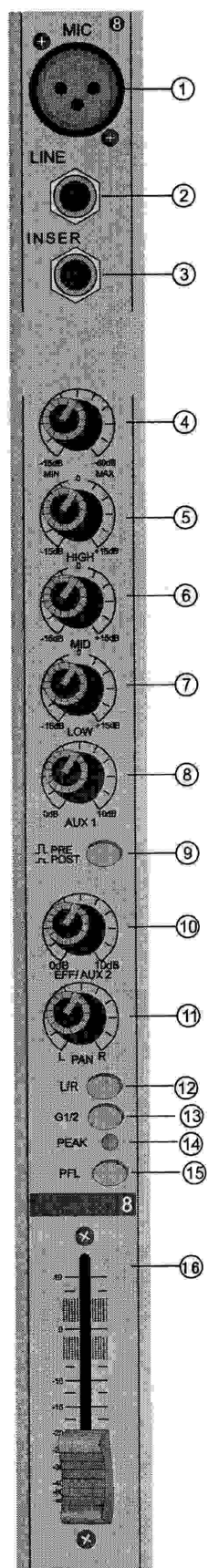
Electronically balanced inputs for the connection of electronic instruments, such as keyboards, drum machines, E-guitars and E-basses with an active output, as well as all other high level signal sources, like additional mixers, FX units, CD players, etc. The LINE input accepts levels between -40dBu... +41dBu. The connection of balanced or unbalanced signal sources is established through monaural or stereo phone plugs, assigned according to the diagram below. If the device that you want to connect has a balanced output stage, the used of balanced cables with stereo phone plugs is preferable. This type of connection is greatly insensitive to the induction of external noise or HF interference.



Do not connect identical signal sources to LINE and MIC inputs at the same time, since the signals would interfere with each other, resulting in level reduction.

**One more note:** Please, do not connect E-guitars or E-basses with passive, high impedance outputs directly to a LINE input. The LINE inputs of the PowerMate - like the Line level inputs of mixers from other manufacturers - are designed for the connection of the relatively low source impedance of electronic instruments. The reproduction of the instrument's original sound characteristics will be unsatisfactory. Connect those instruments using a special transformer or pre - amplifier with very high input impedance. Musical instruments with an active electronic output (battery - powered) can be connected without any problems.

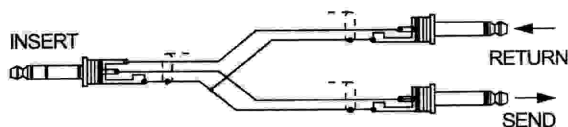
# INPUT MONO



**When connecting signal sources, please make sure to set the corresponding channel faders or at least the master faders to their minimum positions or engage the STANDBY button. This will save you, your audience, and the equipment from extensive wear from unpleasant pops.**

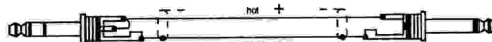
### 3. INSERT

Stereo phone jack with breaker function. The low impedance output is assigned to the tip (send) and the high impedance input (return) is assigned to the ring. This jack allows the connection of external compressors, limiters, Eqs, de-noisers, etc. Into the corresponding channel's signal path. The insertion point is post gain controls. Lo — Cut filters, and voicing stage and pre sound shaping section and channel faders. You have to use a stereo phone plug - according to the diagram aside - in case you intend to use this jack as a true insert bus.



When using the insert socket as a DIRECT OUT (Pre EQ), the stereo phone plug's tip and ring have to be short circuited, so that the audio signal is not interrupted, If you are using a monaural phone plug instead, you will get a DIRECT OUT with breaker function - the signal flow within the channel is interrupted.

DIRECT OUT



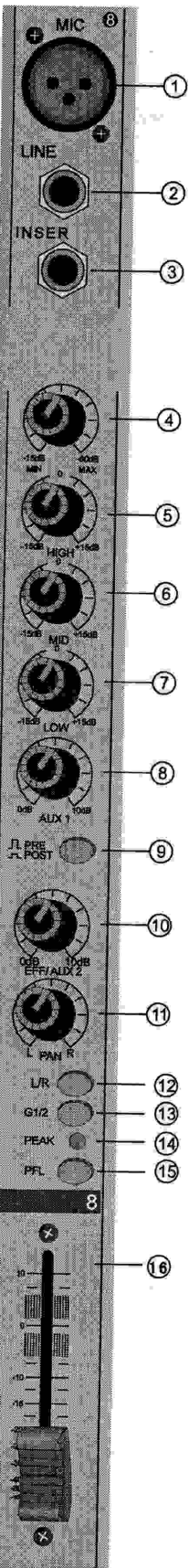
### 4. GAIN CONTROL

Rotary control for adjusting a MIC/LINE input's sensitivity. These controls let you optimally adjust the incoming signals to the mixer's internal operation level. Cautious adjusting offers the benefits of an improved S/N-ration and provides you with the full bandwidth of the PowerMate's outstanding sound capabilities. On the XLR-type connectors an amplification of 0dB is achieved when the control is set all the way to the left and +60dB when the control is set all the way to the right. Especially when dealing with very low input levels - during vocal recordings or when the sound source is located in a distance - the high gain is extremely profitable. Using the LINE- input, the signal is generally attenuated by -20 dB while maintaining the total adjustment range of 60dB. The LINE- input's unity gain - no amplification (0 dB) - is achieved at the 20 dB mark. The following is meant as a short note for your assistance on how to determine the right input level:

#### Setting Instruction:

1. Set the gain control and the corresponding channel fader to their minimum values.
2. Connect the desired sound source (microphone, musical instrument, etc.) to the desired MIC or LINE input.
3. Start the reproduction of the sound source at the highest volume level to be expected - respectively sing or speak as loud as possible directly (short distance) into the microphone.
4. While playing the sound source or singing into the microphone, adjust the input level using the gain control, so that during the loudest passage the PEAK LED is just not lit, but the SIGNAL present LED lights constantly.

This is the basic channel setting, leaving you with at least 6 dB of headroom, i.e. You have at least a range of 6dB before signal clipping occurs. In case you intend to make further adjustments to the channel's EQ setting, you should perform steps 3. and 4. Again afterwards, since changes in the sound shaping section also have an influence on the channel's overall level.



## 5. HIGH

Control the high frequency tone of each channel. Always set this control to the 12 o'clock position, but you can control the high frequency tone according to the speaker, the conditions of listening position and listener's taste. Clockwise rotation of the control increases level.

## 6. MID

This has a function which controls the middle frequency tone of each channel. Always set this control to the 12 o'clock position, but you can control the middle frequency of listening position and listener's taste. Clockwise rotation of the control increases the level, and vice versa.

## 7. LOW

This has a function which controls the low frequency tone of each channel. Always set this control to the 12 o'clock position, but you can control the low frequency tone according to the speaker, the conditions of listening position and listener's taste. Clockwise rotation of the control increases the level, and vice versa.

## 8. AUX 1

AUX 1 and AUX 2 controls are primarily meant for establishing two independent monitor mixers. Using the master sections AUX PRE / POST switches allows determining whether the signals are split pre or post fader.

**PRE - FADER:** The audio signal that is present at the AUX control is tapped pre volume fader and therefore not affected by the fader's setting. This mode is mainly used for monitoring. Pre-Fader Monitoring is especially preferable when monitoring and main mix need to be completely different from each other. e.g. When the volume setting of particular musical instruments or vocals needs to be higher or lower than in the main mix. In most cases the mixing console is placed somewhere in the audience area (FOH) and is being operated by an experienced sound technician.

**POST - FADER:** The audio signal that is present at the AUX control is tapped post volume fader and therefore affected by the fader's setting. This mode is mainly used for establishing FX- or special monitoring mixes. Using the POST - Fader method is recommended when the mixer is also located on the stage and you have to operate it yourself.

Setting all AUX1 or AUX2 controls to their center position, the main mix is also present on the monitor bus, giving you the opportunity to control the volume settings of each channel individually from the stage. The overall volume of the monitor mix is set using the AUX1 / AUX2 changes made with the channel faders also apply to the monitor mix, leaving you with a higher risk of acoustic feedback.

The Post- Fader Monitoring method provides the possibility of canceling channels of some instruments - like kick or snare drum, which are in fact already very loud on- stage - from the monitor mix by turning the corresponding controls all the way to the left.

## 9. PRE/POST

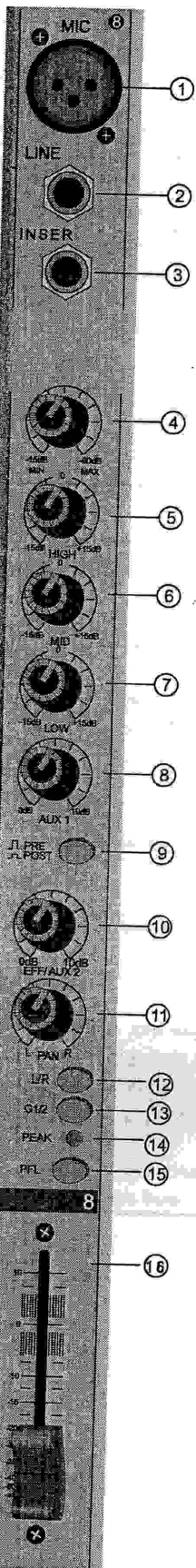
When switch in the PRE position this channel signal sent to AUX 1 channel by CHANNEL FADER. When switch is POST this channel signal direct sent to AUX 1 channel. Out of CHANNEL FADER control.

## 10. EFF/AUX 2

Use this control to set the AUX 2 output of delay signal level. Use this control when you want to get effect sound by adjustment of input signal. When you don't use external source, digital delay will be working which installed inside.

## 11. PAN

The pan control sends continuously variable amounts of the post fader signal to either the left or right main buses, In the center position equal amounts of signal are sent to the left and right busses.



### 13. G1/G2

Push down G1/G2 switch. Can sent this signal to G1/G2 channel.

### 14. PEAK (PEAK LEVEL INDICATOR)

The peak indicator LED will begin to illuminate when the post EQ pre-fader signal of that channel is with 10dB of actual clipping.

### 15. PFL

Engaging the PFL button routes the audio signal to the headphones bus, so that it is present at the phones output connector. The meter instrument in the master section is simultaneously switched, so that the left LED-chain indicates the level of the actually chose channel (in dBu), which allows optimally matching the level of the signal source. The phones output volume does not depend on the setting of the corresponding channel fader (PRE FADER LISTEN), which provides the possibility to listen to or shape the sound of the selected audio signal, without need to include it in the main mix.

### 16. CHANNEL FADER

The channel faders set the volume of the corresponding channels, establishing an accurately proportioned mix. The channel faders should be positioned within the range of -5dB to 0dB, leaving you with a degree of control that allows the precise matching of relative big differences in the channel's level settings. The overall volume is set through the use of the master faders. Even though the channel faders offer an additional amplification of +10dB, we would like to advise you to exceed the +5dB mark only in very few exceptional cases. If the Power Mate's summing bus gets "overloaded" with too many "high level" input channels, despite its special gain structure, the summing amplifier could be driven into clipping. Once you register, that some channel faders are set above the 0dB marking, lowering the setting of each channel fader by about -5dB and increasing the overall output level by elevating the master fader is the wiser solution. The proportion of the mix and the overall volume stay the same while the risk of clipping is banished.

## 1. LEFT RIGHT PIN JACK

This use for connection into line level equipment. (Tape recoder etc.)

## 2. LEFT(MONO)/RIGHT

Line with connection 1/4jack as line input of L, R stereo and input the signal of balance line level. If the signal input into the input terminal of left side, output the mono output to left & right side, if the signal input the input terminal of right side, output into the right side only. If each signal input the input terminal of left & right, output a stereo of left & right.

## 3. A/B

Choose button :press **A** for item A; press **B** for item B

## 4. GAIN CONTROL

Rotary control for adjusting a MIC/LINE input's sensitivity. These controls let you optimally adjust the incoming signals to the mixer's internal operation level. Cautious adjusting offers the benefits of an improved S/N-ration and provides you with the full bandwidth of the PowerMate's outstanding sound capabilities. On the XLR-type connectors an amplification of 0dB is achieved when the control is set all the way to the left and +60dB when the control is set all the way to the right. Especially when dealing with very low input levels - during vocal recordings or when the sound source is located in a distance - the high gain is extremely profitable. Using the LINE- input, the signal is generally attenuated by -20 dB while maintaining the total adjustment range of 60dB. The LINE - input's unity gain - no amplification (0 dB) - is achieved at the 20 dB mark. The following is meant as a short note for your assistance on how to determine the right input level:

### Setting Instruction:

1. Set the gain control and the corresponding channel fader to their minimum values.
  2. Connect the desired sound source (microphone, musical instrument, etc.) to the desired MIC or LINE input.
  3. Start the reproduction of the sound source at the highest volume level to be expected- respectively sing or speak as loud as possible directly (short distance) into the microphone.
  4. While playing the sound source or singing into the microphone, adjust the input level using the gain control, so that during the loudest passage the PEAK LED is just not lit, but the SIGNAL present LED lights constantly.
- This is the basic channel setting, leaving you with at least 6 dB of headroom, i.e. You have at least a range of 6dB before signal clipping occurs. In case you intend to make further adjustments to the channel's EQ setting, you should perform steps 3. and 4. Again afterwards, since changes in the sound shaping section also have an influence on the channel's overall level.

## 5. HIGH

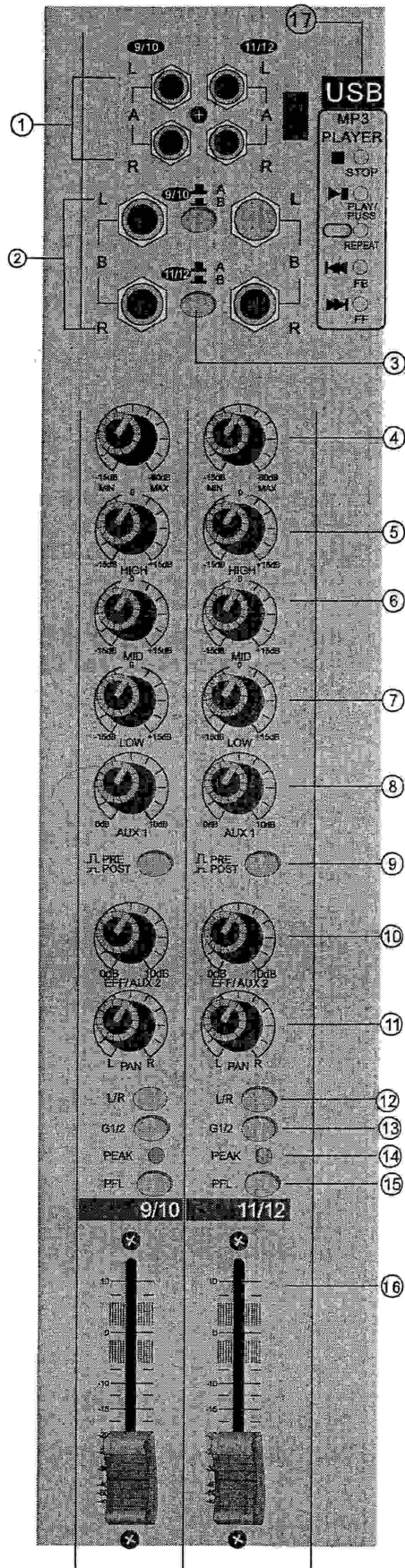
Control the high frequency tone of each channel. Always set this control to the 12 o'clock position, but you can control the high frequency tone according to the speaker, the conditions of listening position and listener's taste. Clockwise rotation of the control increase the level.

## 6. MID

Control the middle frequency tone of each channel. Always set this control to the 12 o'clock position, but you can control the high frequency tone according to the speaker, the conditions of listening position and listener's taste, Clockwise rotation of the control increase the level.

## 7. LOW

Control the low frequency tone of each channel. Always set this control to the 12 o'clock position, but you can control the middle frequency tone according to the speaker, the conditions of listening position and listener's taste, Clockwise rotation of the control increases the level.





# INPUT STEREO

## 8. AUX 1

AUX 1 and AUX 2 controls are primarily meant for establishing two independent monitor mixers. Using the master sections AUX PRE / POST switches allows determining whether the signals are split pre or post fader.

**PRE - FADER:** The audio signal that is present at the AUX control is tapped pre volume fader and therefore not affected by the fader's setting. This mode is mainly used for monitoring. Pre-Fader Monitoring is especially preferable when monitoring and main mix need to be completely different from each other. e.g. When the volume setting of particular musical instruments or vocals needs to be higher or lower than in the main mix. In most cases the mixing console is placed somewhere in the audience area (FOH) and is being operated by an experienced sound technician.

**POST - FADER:** The audio signal that is present at the AUX control is tapped post volume fader and therefore affected by the fader's setting. This mode is mainly used for establishing FX- or special monitoring mixes. Using the POST - Fader method is recommended when the mixer is also located on the stage and you have to operate it yourself.

Setting all AUX1 or AUX2 controls to their center position, the main mix is also present on the monitor bus, giving you the opportunity to control the volume settings of each channel individually from the stage. The overall volume of the monitor mix is set using the AUX1 / AUX2 channel faders also apply to the monitor mix, leaving you with a higher risk of acoustic feedback.

The Post-Fader Monitoring method provides the possibility of canceling channels of some instruments - like kick or snare drum, which are in fact already very loud on-stage - from the monitor mix by turning the corresponding controls all the way to the left.

## 9. PRE/POST

When switch in the PRE position this channel signal sent to AUX 1 channel by CHANNEL FADER. When switch is POST this channel signal direct sent to AUX 1 channel. Out of CHANNEL FADER control.

## 10. EFF/AUX 2

Use this control when you want to get effect sound by adjustment of input signal. When you don't use external source, digital delay will be working which installed inside. Use this control to set the AUX 2 output of delay signal level.

## 11. PAN

The pan control sends continuously variable amounts of the post fader signal to either the left or right main busses. In the center position equal amounts of signal are sent to the left and right busses.

## 12. L/R

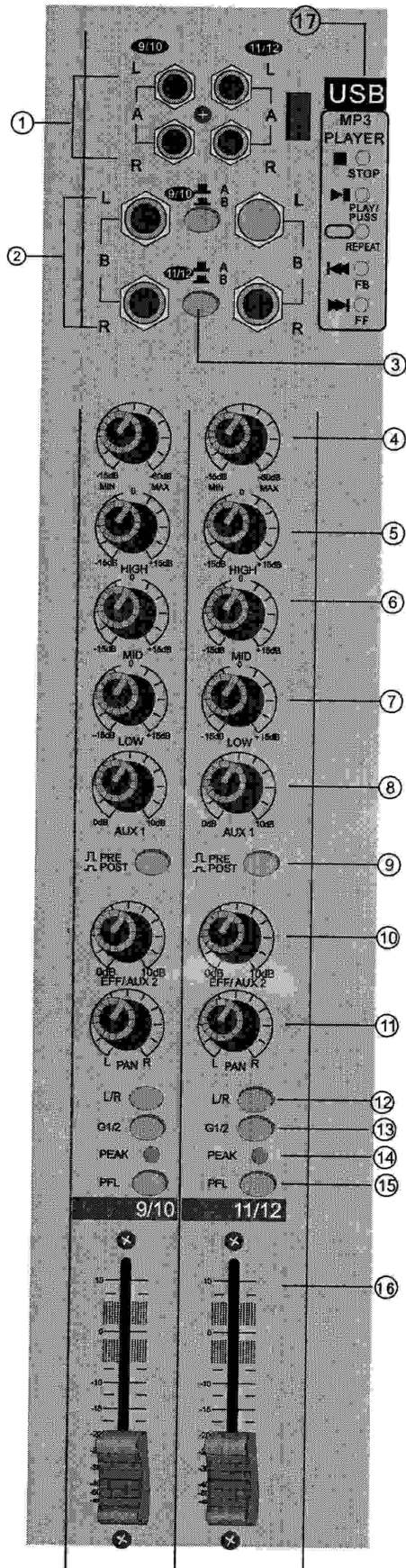
Push down G1/G2 switch this stereo shunt signal sent to G1/G2 channel

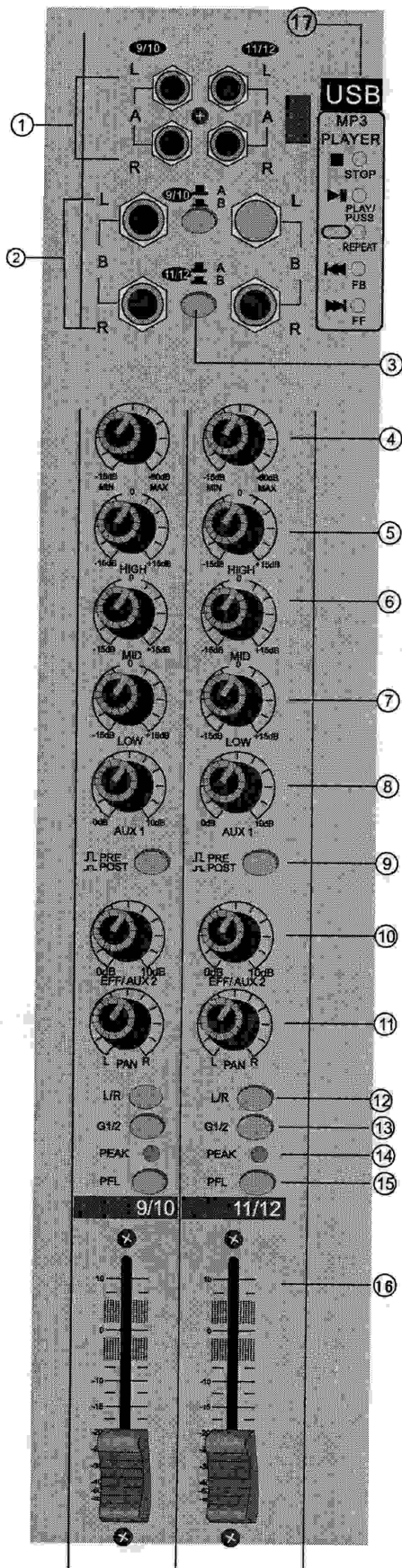
## 13. G1/G2

Push down G1/G2 switch this stereo shunt signal sent to G1/G2 channel

## 14. PEAK (PEAK LEVEL INDICATOR)

A red LED indicates a signal level at the insert return point, premaster fader, it illuminates at approximately 5dB below clipping.





## 15. PFL

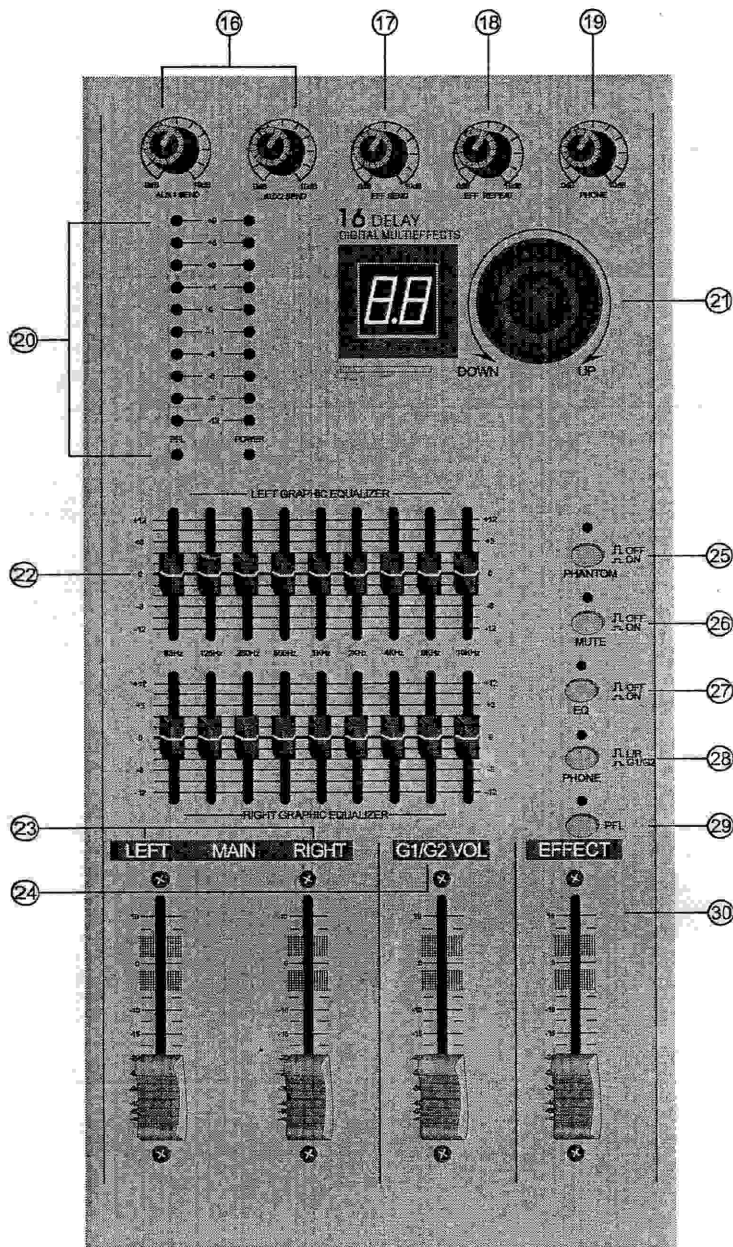
Engaging the PFL button routes the audio signal to the headphones bus, so that it is present at the phones output connector. The meter instrument in the master section is simultaneously switched, so that the left LED-chain indicates the level of the actually chose channel (in dBu), which allows optimally matching the level of the signal source. The phones output volume does not depend on the setting of the corresponding channel fader (PRE FADER LISTEN), which provides the possibility to listen to or shape the sound of the selected audio signal, without need to include it in the main mix.

## 16. VOLUME

The channel faders set the volume of the corresponding channels, establishing an accurately proportioned mix. The channel faders should be positioned within the range of -5dB to 0dB, leaving you with a degree of control that allows the precise matching of relative big differences in the channel's level settings. The overall volume is set through the use of the master faders. Even though the channel faders offer an additional amplification of +10dB, we would like to advise you to exceed the +5dB mark only in very few exceptional cases. If the Power Mate's summing bus gets "overloaded" with too many "high level" input channels, despite its special gain structure, the summing amplifier could be driven into clipping. Once you register, that some channel faders are set above the 0dB marking, lowering the setting of each channel fader by about -5dB and increasing the overall output level by elevating the master fader is the wiser solution. The proportion of the mix and the overall volume stay the same while the risk of clipping is banished.

## 17. USB

HOST(USB2.0) Function (MAX 500 MA)  
used for U disk, MP3, hard Disc & flash disc reader, etc.



**16.AUX1,2 SEND**

This is used for adjusting volume of AUX sound.

**17.EFF SEND**

Effect signal send volume. It can control the fixed volume of transmitted effect signals from every channel to the master effect line of this appliance.

**18.REPEAT**

This is used for adjusting frequency of echo repeat. Since too much echo repeat may cause a howl, please adjust frequency properly.

**19.HEADPHONE VOLUME CONTROL**

The master volume control for the monitor. PFL output signal to the headphone jack.

**20.LEVEL METER**

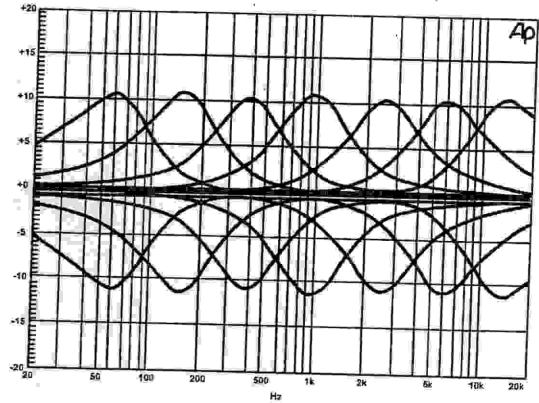
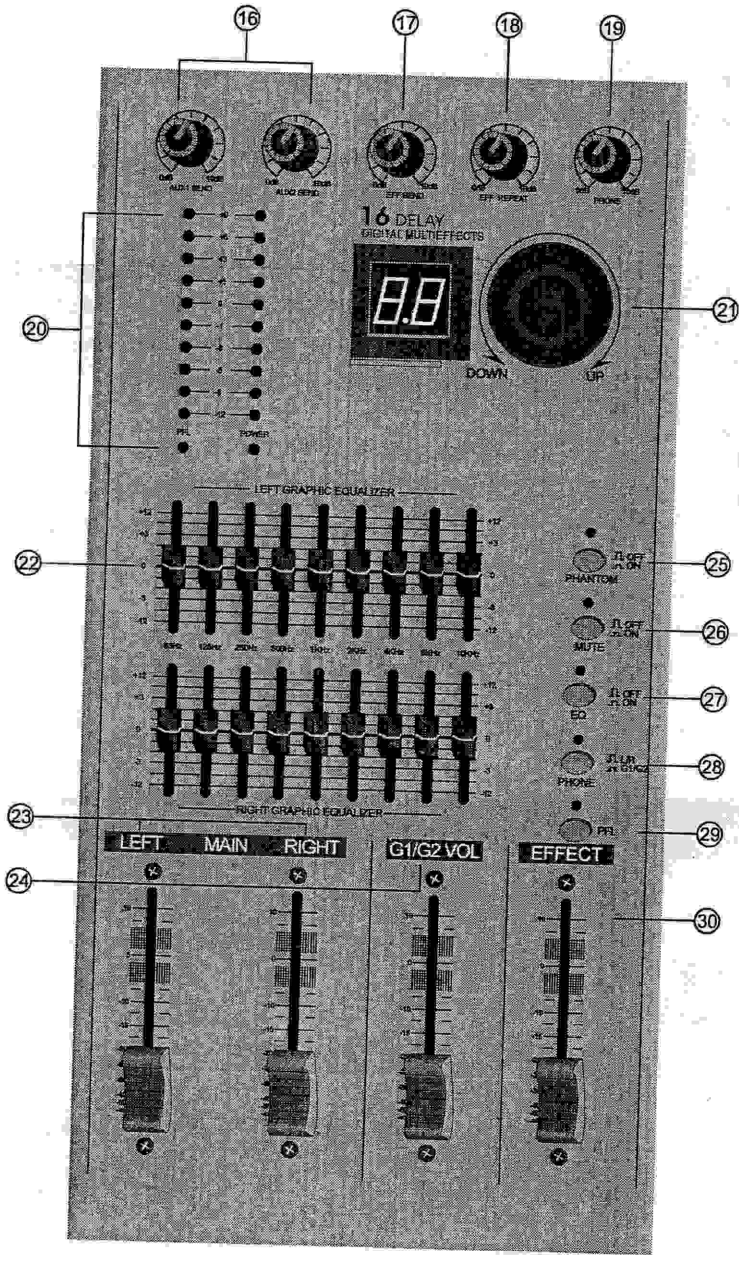
The PowerMate offers two 12-segment LED-chains for optical monitoring the output levels of the L/R master signals. The indication range of the LED-meter is 40dB, indicating the levels that are present at the main outputs in dBu. The meter's 0dB mark is referenced to a 0dBu output signal at the mixer output. Further increasing the level leads to the power amplifier's maximum input level of +6dB - equaling an output power of 450 watts into 4 ohms per channel. Although higher levels are being displayed, the power amp's processor already limits the signal. Which is indicated by the lit LIMIT LED in the status display.

**21.DISPLAY DIGITAL DISPLAY**

Effecters type select display. There are 16 types of 0-9 and A-F, representing the delay time of the effecters. When start, it is set to be "7" the normal use type. If need, it can be adjust to the effects of an ideal sound field.

**22.STEREO GRAPHIC EQ**

Left and right master channels employ a 9-band equalizer, which gets activated through the use of the EQ ON button. The EQ's insert point is post master fader and pre power amplifier. The EQ is bypassed when the EQ ON switch is not locked in its "ON" position. Seven frequency bands offering 10 dB amplification/attenuation and a quality of Q=2 allow shaping the overall sound to meet your personal preferences or of optimally match it to the acoustic conditions of different locations.



The frequency ranges as well as the characteristics of the EQ faders are very praxis-oriented. In case you want to have a clear and highly intelligible sound, which, as a side effect, provides the cymbals with more crisp, you should raise the levels of the 12kHz or 6kHz band a bit. If the MIDs arenasaling you should attenuate the mid range by some decibels. To provide the kick drum with more punch you have to boost the low frequency range, using the 63Hz or the 125Hz controls. In case the overall sound is undefined with toomuch bass lowering the levels of these two frequency bands will solve the problem. However, especially with equalization you should be aware of the fact that in most cases less adjustments provide better results. Thus, your first choice should be to establish the mix using only the input channel controls and see if you get a satisfactory result. If so, you can use the graphic EQ for the AUX3/4 or the MONO bus, where in most cases, especially when used for the monitoring, it is more needed. You will find the description of how to include the graphic EQ in these buses in the following explanation of the MASTER PATCHBAY.

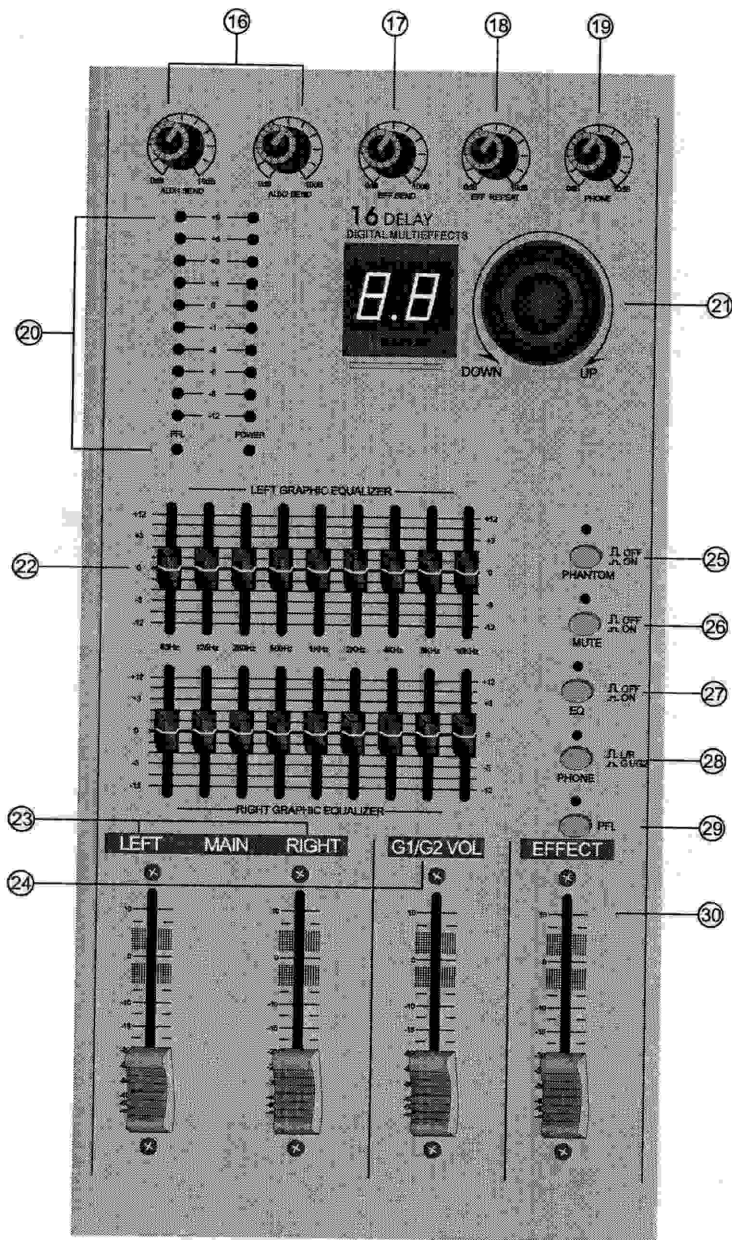
**23. OUTPUT MASTER (LEFT/RIGHT)**

Level controls to adjust the output signals of the left and right main outputs (MASTER).

**Please, make sure to set the Input channel faders or at least the master faders to their minimum position, or to engage the STANDBY switch, before connecting an external sound source to an Input of the PowerMate. This will save you, your audience, and the equipment from unnecessary stress.**

**24. G1/G2VOL**

Using by this control, you can adjust G1, G2 outputs level.



## 25. PHANTOM POWER SWITCH

Depressing this switch 48V DC across all microphone input channels connectors for remote powering of condenser microphones.

## 26. MUTE

The MUTE button mutes the input signal post fader, including all AUX sends. PFL and Signal/Peak stay functional.

## 27. EQ OFF/ON

Push switch, when you need EQ signal output, "ON" or "OFF".

## 28. HEADPHONE FUNCTION SELECT SWITCH

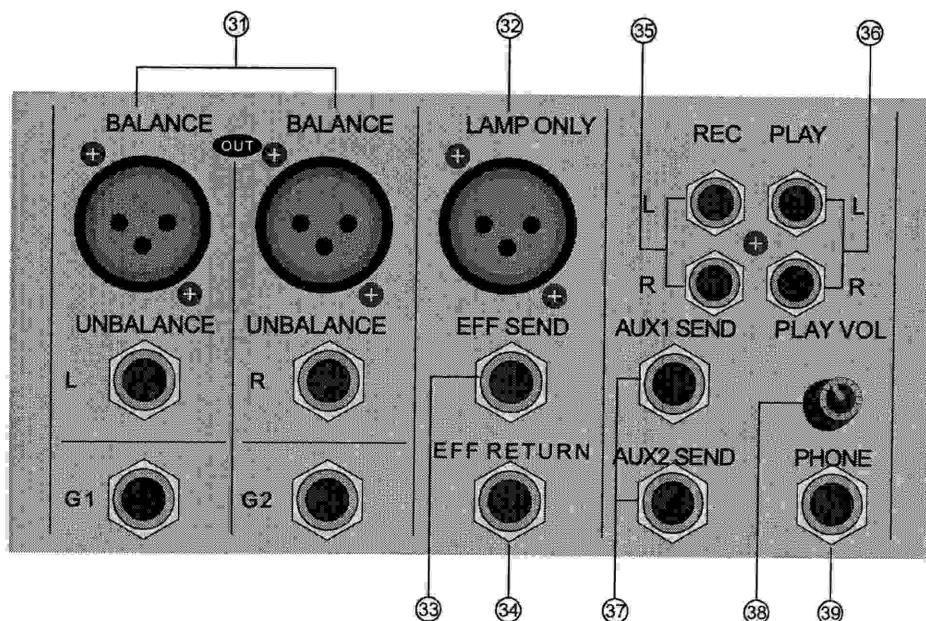
Using by this control, you can select of L/R G1/G2. If switch position is L-R, certain channel's PDL & Main L-R switch must be pressed.

## 29. PFL

When you want to monitor echo sound & external effector sound, you can adjust this control thru the headphone.

## 30. EFFECT

These stereo faders are used to determine the effect amount added to the main mix. In case you have to set these faders at a position above the +5dB mark, please check if the FX unit's input signals are adjusted properly. Otherwise use the AUX/FX SEND controls to increase the input levels.



**31. OUTPUT JACK(RIGHT/LEFT)**

In this product, the final confirmed sound can be sent to main amplifier through XLR & 1 / 4" jack.

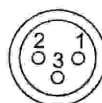
**G1/G2 OUT**

The terminal to be output with the volume control against inputting signal into G1/G2 board.

**32. LAMP ONLY**

This XLR-type socket provides a DC voltage of 12V/5 watts and is meant for the connection of a gooseneck lamp (litlite). Please make sure that the used lamp complies with the here mentioned specifications and pin assignment. Overload or short circuit can result in damaging this output. To prevent this from happening, we recommend the use of the gooseneck lamp (112700), available from the accessory assortment. For further information, please consult your local dealer.

LAMP  
12V / 5W  
PIN 1: N.C.  
PIN 2: + 12VDC  
PIN 3: 0VDC



**33. EFF SEND**

This is used for adjusting volume of echo sound when sending echo sound to SEND jack:

**34. REPEAT**

This is used for adjusting frequency of echo repeat, Since too much echo repeat may cause a howl, please adjust frequency properly.

**35. RECORD PIN JACK**

This jack is to be connected with cassette deck when recording the mixed output.

**36. PLAY PIN JACK**

This jack is to be connected with cassette deck when playing back.

**37. AUX1-2 SEND**

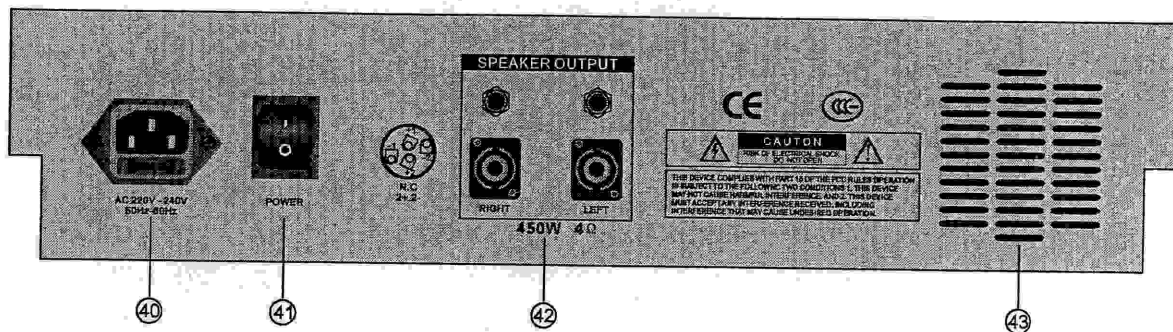
This can be used to connect all kinds of effects from outside.

**38. PLAY VOL**

Play signal input signal volume control volume from 0dB-10dB

**39. PHONE JACK**

You can monitor working condition by sound thru the headphone. You can monitor master sound. When the LED(NO, 56) turn off and you can monitor a certain channel. the LED will be turned on.



**40. 220V-50Hz +/-10% (Service Voltage & Frequency) Power Cord**   
**110V-115V / 50~60Hz Power cord**

### 41. ON/OFF Power Switch

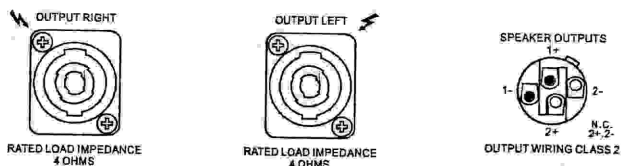
This is the external power supply switch. When turned on, power indicator 22 illuminates, and the appliance is working, When turned off, power indicator turn dark.

### 42. SPEAKER R-Channel Speaker Jack

This is a XL type jack to connect right-channel speaker with output impedance of 0.1 Ohm and rating load impedance of 4-8 Ohm.

### SPEAKER L-Channel Speaker

This is a XL type jack to connect left-channel speaker with output impedance of 0.1 Ohm and rating load impedance of 4-8 Ohm.



### 43. FAN

The PROCESSED COMPACT PRECISION stereo power amplifier of the PowerMate has been designed in discreet bipolar technology to provide a nominal output of 700 watts into 4 ohms per channel. The minimal load impedance of 2.7 ohms allows the operation with a maximum of three 8 ohms loudspeaker systems connected in parallel to each output channel. Their low distortion rate and inter-modulation provide the amplifiers of the PowerMate with outstanding transmission capabilities that do not have to fear the comparison with professional high-end, standalone audio power amplifier. The transmission qualities of CL power amps are simply extraordinary. Optimised power supply units employing low-leakage toroidal transformers and the consistent use of Class-H technology provide extensive headroom far above the stated nominal output. At the same time this contributes to a reduction in weight and leakage power. Characteristic for the Class-H power amplifier design of the PowerMate is its extremely fast, signal-dependent operating voltage switch, which results in doubling the regular supply voltage when needed. In comparison to Class-AB power amps Class-H power amps, generate by far less leakage power at identical output. Consequently, reduced leakage power or dissipation is synonymous to less waste heat-energy is used more efficiently and the power consumption stays clearly below that of conventional Class-AB operation. As a result, installing Class-H power amps within rack shelf systems is possible with less space between appliances.

The power amplifier of the PowerMate is designed to live through the hardwearing use in the touring business. It incorporates protection circuitry against thermal and capacitive overload and short circuit as well as against HF- interference and DC at the outputs. Further protection of the power output stage against back-feed of electrical energy (BACK-EMF) is provided through special circuitry. When the Power outputs. The internal fans run shortly at full speed, acoustically signaling that the PowerMate is operational. Limiter circuitry (soft start) controls the initial current inrush, preventing the mains fuse from being blown during power-on. Two 3-speed fans (off/slow/fast) guarantee absolute thermal stability at low running noise. The ventilation is directed front-to-rear allowing trouble-free operation even in very compact amp- racks.

The extensive comparator circuitry constantly monitors the input and output signals of the PowerMate's power amp and activates the internal limiters whenever a non-linear operational is encountered. This provides reliable protection of the connected loudspeaker systems against overload and clipping. Distortion is not intelligible even when the maximum input level is overridden. The amplifier of the PowerMate additionally incorporates LPN-filters (patent). Together with the 12dB Hi-Pass filters, these Low Pass Notch filters eliminate faults in the transient response of typical sound reinforcement speaker systems and provide your setup with an extraordinarily precise and powerful reproduction of low frequencies.

# SPECIFICATIONS

**Technical Specifications** Mixing desk in rated condition, Unity Gain (MIC Gain 20 dB), all faders position 0 dB, all pots in mid position, master fader +6dB, amplifier rated output power into 8 ohms, dual channel, unless otherwise specified.

**Rated Output Power**, THD=0.1%, Single Channel

into 4 Ohms

**50W**

**Maximum Output Voltage** of power amplifier, no load

70Vrms

**THD** at 1KHz, MBW=80KHz

MIC input to Main L/R output, +16 dBu, typical

<0.005%

power amplifier input to Speaker L/R output

<0.01%

**DIM 30**, power amplifier

<0.01%

**IMD-SMPTE**, power amplifier, 60Hz, 7KHz

<0.01%

**Frequency Response**, -3dB ref. 1KHz

Any input to any Mixer Output

15Hz...80KHz

Any input to Speaker L/R output

20Hz...70KHz

**Crosstalk**, 1KHz

Fader and AUX= Send attenuation

>85dB

Channel to channel

>80dB

**CMRR**, MIC input, 1KHz

>80dB

**Input Sensitivity**, all level controls in max. position

MIC input

-74dBu (155  $\mu$ V)

LINE Input (Mono)

-54dBu (1.55mV)

LINE Input (stereo)

-34dBu (15.5mV)

Power Amplifier Input

+6dBu (1.55v)

**Maximum Level**, mixing desk

MIC inputs

+21dBu

Mono Line inputs

+41dBu

Stereo Line inputs

+30dBu

All other inputs

+22dBu

Record Send output

+14dBu

All other outputs

+22dBu

**Input Impedances**

MIC

2kohms

Insert Return

2.2kohms

EQ Input and 2 Track Return

8 k ohms

All other inputs

>15k ohms

**Output Impedances**

Record Send

1k ohms

phones

47 ohms

All other outputs

75 ohms

**Equivalent Input Noise**, MIC Input, A-weighted, 150 ohms

-130dBu

**Noise**, Channel inputs to Main L/R outputs, A-weighted

Master fader down

-95 dBu

-95 dBu

Master fader 0 dB, Channel fader down

-90 dBu

-88 dBu

Master fader 0 dB, Channel fader 0 dB Channel gain unity

-83 dBu

-82 dBu

**signal/Noise-Ratio**, power amplifier, A-weighted

105dB

**Equalization**

LO Shelving

$\pm$ 15dB/60Hz

MID Peaking, mono inputs

$\pm$ 15dB/100Hz...8KHz

MID Peaking, stereo inputs

$\pm$ 12dB/2.4KHz

HI Shelving

$\pm$ 15dB/12KHz

Master EQ, 2x9-band, 63, 125, 250, 500, 1k, 2k 4k, 8k, 16kHz

$\pm$ 10dB/Q=2.0

**Power Consumption** at 1/8 maximum output power, 4ohms

640W



# BLOCK DIAGRAM

