

OWNER'S MANUAL

POWER AMPLIFIER

Hafler™

A Division of Rockford Corporation
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SPECIFICATIONS

Power Rating:

Less than 0.025% total harmonic distortion at any power level up to 120 watts continuous average power per channel into 8 ohms at any frequency between 20 Hz and 20 kHz with both channels driven,

Continuous Power Output:

Into 4 ohms, below -04% THD, 20 Hz-20 kHz, per channel: 175 watts

IM Distortion (IHF):

Less than 0.005% from 1 watt to 120 watts, each channel, into 8 ohms.

Typical THD at 50 watts into 8 ohms:

20 Hz: 0.004%

1 kHz: 0.004%

20 kHz: 0.02%

Frequency Response into 8 ohms:

-3 dB, 2 Hz to 200 kHz at 1 watt.

+0 dB, -0.5 dB, 4 Hz to 40 kHz at 120 watts.

Typical Channel Separation:

20 Hz: 80 dB

1 kHz: 75 dB

20 kHz: 60 dB

Signal to Noise Ratio:

Exceeds 100 dB referred to 120 watts into 8 ohms.

Input Impedance:

47,000 ohms.

Input Sensitivity:

1.2 volts rms for 120 watts into 8 ohms.

Slew rate:

10 kHz, 60 volts peak to peak square wave: 45 v/us

Damping Factor:

300 to 1 kHz into 8 ohms.

200 to 10 kHz into 8 ohms.

Power consumption:

120 watts both channels into 8 ohms: 550 VA

Quiescent: 120 VA

Size:

5-1/4" high plus 1/2" feet, 17" wide. and 10-1/2" deep.

Net Weight:

27 lbs.

Shipping Weight:

31 lbs.

All specifications are subject to change without notice.

INTRODUCTION

The Hafler SE-240 is a two channel audio amplifier which has been engineered to meet high performance and reliability standards while maintaining affordability.

The amplifier employs a sonically proven circuit topology driving MOSFET output devices. These devices provide exceptional reliability as a result of their inherent ruggedness and resistance to abusive operating conditions. Consequently, the SE-240 is capable of delivering high current into low impedance loads, and generally the amplifier will not be damaged in the case of an accidental short circuit at the output. The drive circuitry is a high performance arrangement with a double differential JFET input. Quality components are used in the design to ensure longevity and, above all, sonic excellence.

INSTALLATION

Ventilation

Adequate air flow is important to the continuing reliability of any amplifier. Cool air must be able to circulate freely through the perforations in the cover and under the chassis, and around the heat sinks. It is expected that the amplifier will always be resting on its feet, which should be on a hard enough surface that air flow underneath will not be obstructed. If the amplifier is mounted in a rack, or through a panel, the feet may be removed so long as adequate ventilation is provided through the bottom openings. It is normal for the cover and heat sinks to become warm in use.

Location

If the amplifier is to be installed close to a record player, you should first check its position for freedom from hum pickup by the phono cartridge, as any large power transformer radiates a field which may induce hum. Although

the Hafler transformers are designed to minimize this field, certain cartridges are more sensitive than others, and require separation from the amplifier. Check at a comparatively high volume setting, swinging the tone arm through its arc. Usually a few inches of added space is all that is needed.

Line Connections and Switching

The SE-240 is normally wired for use on 120V AC power lines, as in the USA. If your line voltage is different, you will need the special Hafler export power transformer which accommodates many other line voltages. Be sure your amplifier is wired for your line voltage before you plug it in.

The SE-2403 power switch may be left on, and the amplifier switched remotely by connecting its line cord to a preamplifier (or other control center) which provides a switched AC outlet. Make sure that the control device can supply a current of 10 amperes to the SE-240, in addition to the current required by any other switched units. You may instead connect the amplifier directly to a wall outlet, and control it with its own front panel power switch.

Connecting Cables

INPUT. Conventional shielded cables, often supplied with preamplifiers, may connect the control center to the amplifier's input jacks. Be sure the cables are not frayed or loosely connected to the plugs, and that the plugs outer shield connection is tight on the jack, to avoid hum. If you wish to install the SE-240 more than a few feet from the preamplifier, the permissible cable length to avoid loss of high frequencies is determined by the preamplifier's output impedance and the internal capacitance of the cable. If the output impedance is 600 ohms or less, as with Hafler preamplifiers, and the cable capacitance is less than 50 picofarads per foot, up to 50 feet is acceptable. Ordinary stereo interconnecting cables often have higher capacitance, however, so a good quality low capacitance shielded wire should be used. When making long runs, keep the left and right cables close together, and avoid

running them parallel to power wiring to reduce the likelihood of hum pickup.

OUTPUT. The wires which connect the speakers to the amplifier should be of sufficient size to preserve the SE-240's high damping factor.

(zip cord) is satisfactory for up to 15 feet if your speakers are of 8 ohms or higher impedance. A heavier gauge (or larger) wire should be used with 4 ohm speakers, or 8 ohm speakers at a greater distance. Special loudspeaker cables which have adequate thickness to accommodate long runs are usually available from audio dealers. The SE-240's red and black outputs accept standard plug connectors, including the double ones with 3/4" spacing. These are the most convenient to use if you will be disconnecting the speakers occasionally. The terminals will also clamp a spade lug, or a bare wire through the hole in the center post. Be sure there are no frayed wire ends which could touch adjacent terminals or the chassis. Tin bare wire ends with solder to secure all strands.

PHASING. Consistent phase relationships are important when connecting speakers in order to enable full bass reproduction as well as mid-range and high frequency time alignment. To be sure all the speakers in a system are wired in phase to the amplifier, each ground or '-' speaker terminal should be connected to its black ground terminal on the SE-240, and the speaker's '+' terminal to the corresponding red binding post. Speaker connecting cable identifies one wire from the other by the color of the wire, or by marking or coloring the insulation. NOTE: In the special case of monophonic operation of the SE-240, described later, different speaker connections are employed.

GROUNDING. The black output terminals of the SE-240 are connected together internally and grounded to the chassis. This facilitates the use of external devices which use a common ground connection, such as some head-phone junction boxes. You must be sure that the ground or shield connection from such a device goes to a black terminal on the SE-240. NOTE: No such connection may be made when the SE-240 is connected for bridged mono operation.

Conventional Stereo Connections

It is best to make all connections with the SE-240 switched off. Each of the stereo speakers connects to one horizontal pair of red and black outputs, as identified left or right on back of the SE-240. The input signals connect to the corresponding input jacks, and the Mono/Stereo switch should be set to Stereo.

Connections for Monophonic Operation

When you wish to drive a single loudspeaker with increased power capability, the SE-240 can be operated in a bridged mode which drives both channels with the same signal and combines their output to deliver more than 350 watts into 8 ohms. In this arrangement, the speaker is connected only to the two red output terminals. The left red terminal is '+', and the right red terminal is the '-' connection. **No connections may be made to any black terminal.** Set the Mono/Stereo switch to Mono, and connect the input signal to the left channel input only. Important Note: Never use a speaker with an impedance of less than 8 ohms when operating the SE-240 in the bridged mode; the increased current output could damage the amplifier.

LOUDSPEAKER SELECTION AND PLACEMENT

Normal Stereo

The SE-240 is designed to deliver more than 120 watts of audio power into an 8 ohm load. This will drive most loudspeakers to a very loud volume level without clipping. Note that speaker manufacturers often specify speaker power requirements in two ways: nominal power (for average volume levels), or maximum continuous power (for momentary loud passages). Our 120 watt rating applies to maximum power levels. If your speaker im-

pedance is less than 8 ohms, the SE-240 can deliver more power into the lower impedance.

Sound reproduction accuracy is largely a measure of your success in satisfying an illusion of the original. There are few rules for speaker placement. The shape, furnishing and acoustics of the room contribute as much as speaker choice to the overall balance which you will find most satisfying. In general, the two speakers are best placed equally distant from the listener and from each other, either along or just in front of a wall. It is best to have no obstructions between the speaker and the listener. Sometimes raising the speakers is beneficial. Sound absorbing materials, such as carpeting, draperies and upholstered furniture help to reduce reflections, and thus improve the sound illusion, but excessive absorption will deaden the effect. Feel free to experiment with controls and furnishing to achieve the overall balance which you like.

OPERATION

The pilot lamp in the power switch will glow whenever power is applied in the SE-240. If it does not light, check for a blown AC line fuse.

The SE-240 is equipped with a unique protection system that constantly monitors the temperature of the output devices and takes corrective action to prevent damage to the amplifier as a result of excessive overheating. Under most conditions, the SE-2403 heatsinks will dissipate the heat required to maintain safe operating temperatures, and the unit will play continuously. If the amplifier is driven at high volumes into speakers with an impedance of less than 8 ohms, and/or there is inadequate ventilation, the sinks could heat to a level that would cause the protection circuitry to shut the unit off for a short time (normally less than 1 minute) to prevent damage. The SE-240 will return to normal operation, and if the overheating condition is still present the cycle will repeat. In this case, check the surroundings of the unit to ensure sufficient air flow around the heatsinks and through the vent holes. Otherwise, check the load impedance connected to the outputs to see if it is far below 8 ohms.

Fuses

The SE-240 is supplied with a 10 ampere Slo-Blo AC line fuse and four power supply fuses. If one of these fails, it is usually indicative of a fault which will require professional service.

FACTORY SERVICE AND LIMITED WARRANTY

If you have any difficulties or questions concerning your SE-240 amplifier, please call our Technical Service Department weekdays, 8 a.m. to 4 p.m. Mountain Standard time, at **(602) 967-3565**. **Should you have any doubts as to whether the amplifier is malfunctioning and requires service, please call us before sending in for repair.**

The Hafler SE-240 is warranted for 3 years from date of purchase, including parts, labor, and return shipping cost from the factory to owner within the continental U.S.

It is the owner's responsibility to pay shipping (preferably UPS) to the factory; collect shipments will not be accepted. Units under warranty should be accompanied by a copy of the dated bill of sale. Use the original carton and all packing material, and be sure to include a return address. Also give a brief description of the difficulty, including whether it is intermittent.

Warranties apply only to the original purchaser, and are void if the amplifier has been modified without factory authorization, or if parts have been substituted which, in the factory's opinion, are not suitable, or if the amplifier has been physically or electrically abused or used for some purpose for which it was not designed or intended.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.