



## LP50<sup>®</sup>

### OWNER'S MANUAL AND INSTALLATION GUIDE

#### INTRODUCTION

You have purchased an amplifier that leads the way with sound quality, reliability, and features. These high performance amplifiers deliver what you ask for: smooth, effortless listening, or hard driving power to get you down the road. **LINEAR POWER™** has been a name recognized since **1975** as a product delivering high quality and audio excellence. Now, you have the results of that experience.

**LP50<sup>®</sup>** features include: frequency programmable **high-pass, low-pass, or bypass** cross-over filter; high current, gold plated power connector, gold plated **5-way binding post** speaker connections, panel mount fuse, high quality components, bass and treble controls (**Z models** only, and **LINEAR POWER™** reliability and commitment to excellence. Enjoy the Music!!

#### IMPORTANT NOTICE

The **LP50<sup>®</sup>** is **NOT 2-ohm mono** stable. While it may be used in **2-ohm stereo**, if you hook-up this amplifier in **2-ohm mono** it will **DAMAGE** the unit and **VOID** your warranty. For further information on this, or assistance to calculate your total speaker load impedance, please call **T.I.P.S. Inc.** (see info under **Service or Repair** heading)

#### CONTROLS and CONNECTIONS

Please read through this entire section before installing your amplifier in the vehicle. Disconnect the negative (-) battery terminal in your vehicle and remove the fuse from the amplifier before making or breaking any connections. Do not install power line fuse at battery or amp until the installation of your amplifier is complete.

**1. Input connections:** Connect with quality patch cords from the head unit, preamplifier, crossover, or any other sound processor.

**2. Input level:** This is **NOT** a volume control. The input sensitivity should be adjusted to give you maximum output power while minimizing distortion. To set the input sensitivity, first turn the amp input level control fully counterclockwise. Turn the source output level up until the signal just starts to distort, and then turn the source back down slightly so that the distortion goes away. Now rotate the input level control on the amp clockwise until the signal just starts to distort, then turn the amp input level control back down slightly so that the distortion goes away. This setup procedure allows the source and amp to reach maximum clean output at the same time. For maximum performance/power, the input voltage to the amplifier should not exceed 6.5 V rms.

**3. Speaker connections:** These connections are high quality 5-way binding posts. You may connect them with banana plugs, spade connectors, pins or bare wire. For stereo connection of the amplifier, connect the positive speaker leads to the red posts and the negative speaker leads to the black posts. For **mono** connection of the amplifier, connect the speaker positive (+) to the left, red binding post and the speaker negative (-) to the right, black binding post. The amplifier is capable of being connected in mono and stereo at the same time, but a passive crossover should be used.

The **minimum recommended** speaker load on the **LP50<sup>®</sup> IS 2-ohm stereo** or **4-ohm mono**. Unlike most car audio amplifiers, the **LP50<sup>®</sup>** is designed for maximum power output into BOTH **4-ohm** and **2-ohm stereo** loads, as well as **4-ohm mono**. The **LP50<sup>®</sup>** is **NOT 2-ohm mono** stable. If you run a **two-ohm stereo** or **4 ohm mono** load you **MUST** change the internal power supply taps (located near the toroid coil) to the settings marked 2. If you change the taps to the settings marked 2 you must reset the gain adjustment. Failure to reset the taps or reset the gain adjustment will cause failure of your amplifier and void your warranty.

**4. + 12V connection:** Connect **8 AWG or larger** power cable through an inline fuse to the positive (+) terminal on the battery. Position the inline fuse within 18" of the battery. The inline fuse should be the same style and rating as the fuse on the amplifier. Be sure all connections are secure.

**5. Ground Connection:** Connect **8 AWG or larger** power cable directly to a clean bare metal surface on the car chassis. Use as short a cable run as possible. Be sure all connections are secure.

**6. Remote connection:** Connect **18 AWG** or larger wire to the remote turn-on signal or power antenna signal from the source unit. If you do not have either of these signals available, use the "ignition on" or "accessory" signal to drive a relay that will connect the battery to the **REM** input on the amplifier when the key is in the ignition. Be sure all connections are secure.

7. **Fuse:** Remove the fuse from the amplifier before making or breaking any connections in your installation. If you need to replace the fuse, use only a fuse of the same style and amperage rating as that shipped with the amplifier (see chart below). If the fuse blows, it is telling you there is something wrong. Please listen. The LP50® uses an **ATC 15** amp fuse.

8. **Status indicators:** The **green LED** indicates the amplifier power supply is working. If the **green LED is flashing**, it is an indication that the **+12V** connection is dipping below 10.5V dc, or that the speaker load is too low. The **yellow LED** indicates the amplifier has shut down due to overheating. When the amplifier has reached the correct operational temperature, it will turn itself back on. The **red LED** indicates the amplifier has shut down due to too much current through the output stage. This excessive current can be caused by speaker shorts, too low of speaker loads, incorrect transformer configuration, or incorrect input level setting. The **REM** signal must be shut off and turned back on before the current protect will reset and allow the amplifier to operate.

9. **Crossover:** The LP50® amplifier has a built in programmable crossover filter. You may select the high-pass, low-pass or bypass modes thru a switch on the bottom of the amplifier located near the speaker connections. Remove the black cap plug to gain access to the switch. If you select high-pass mode the amplifier will play all frequencies from 80 Hz and up. If you select low-pass mode the amplifier will play all frequencies from 80 Hz and down. All amplifiers are shipped in the bypass mode that disconnects both the input and output of the crossover filter from the audio path. You can change the cutoff frequency from 80 Hz by purchasing optional frequency selector chips and installing them in the place of the 80 Hz chips. Frequencies available are 60 Hz, 70 Hz, 105 Hz, 160 Hz, 210 Hz, 285 Hz, and 340 Hz. The optional chips are available from your dealer.

## **MOUNTING**

1. The amplifier will work best if it is kept as cool as possible. Mount the amp in a position that will allow air to flow freely through the fins. Hot air rises, so orienting the amp with the connectors facing the ground and the status indicators facing the sky is the ideal mounting position. The amplifier should not be mounted upside down. Be sure there is ample space above the amplifier to avoid trapping heated air against the heat sink.

2. The heat sink of your amplifier is designed to act as a noise shield. To maintain this protection, be sure the metal case of the amplifier does not touch any metal in the car. Do not remove or damage the rubber grommets that provide electrical insulation and vibration isolation. Avoid mounting the amplifier in the dash or on the firewall where sources of noise such as your alternator, windshield wiper motor, and air conditioner radiate the most energy.

## GENERAL TROUBLESHOOTING

**No Sound:** Check that the **green power LED** is on. If the green power indicator is lit, check all signal input and speaker connections. If the **green power LED** is not lit, check for +12 V dc on the +12 V and **REM** inputs and check for a solid ground connection on the power connector. If **yellow thermal LED** or **red current LED** is lit, see the **status indicators** portion of this manual.

**Blows Fuses:** Check all connections to be sure all power wires do not touch ground or each other. Be sure power connections are not reversed. Check the input level control for proper setting. Check for proper speaker impedance!

**Noise Problems:** Be sure the metal sleeve on the RCA (phono) jacks does not touch the metal chassis of the vehicle, the heat sink of the amp, or the chassis of any other components in your installation. Route signal cables away from power wires, power connections, speaker wires, engine alternator, and vehicle firewall.

## SERVICE OR REPAIR

To obtain modification, service or repair, please contact our **ONLY Authorized LINEAR POWER™ Product Service Center:**

**T.I.P.S. INC.**  
3455 Lanell lane, Pearl, MS 39208  
(601) 932-8477  
E-mail: ray@tipsinc.net

**LINEAR POWER™**  
3455 LANELL LANE, PEARL, MS 39208 (601) 932-8477

## SPECIFICATIONS

### LP50©

RMS Power 4 Ohm @ 12.5v	25 x 2
Mono Power Rating	100 Watts
Channel Separation	>80 dB
THD + Noise	.06%
Slew Rate	8 volts/micro-second
Damping Factor (4-ohm/2-ohm)	200/100
Headroom	3 dB
Signal-to-Noise	95dB
Frequency Response	5Hz-350kHz
Dimensions	2.75"x11"x5"
Fusing	15 Amps

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