



Product Parameters and Specifications
Model: Legatia L4 Midrange

Legatia™ L4

The world's finest sounding four and a half inch midrange is the Legatia L4, Hybrid Audio Technologies' flagship middle range driver. While the Legatia L3 offers several distinct benefits for certain installations, such as a-pillar, dashboard, or small/shallow kick panels, the larger cone area and extended phase plug pole piece of the L4 is an even better wide-bandwidth midrange performer for those with room to accommodate the larger midrange in the Legatia family.

The Legatia L4 has an outstanding extended frequency response; the usable frequency range of this driver exceeds seven full octaves. With proper filtering, installation strategy, and tuning, the L4 will effectively reproduce music tones as low as 125 Hz to as high as 17,000 Hz. It is the ultimate point-source midrange driver, and is the midrange driver of choice of several top car audio competitors around the world. In certain installations and for certain listeners, a tweeter may be optional because the L4 plays to 17,000 Hz on axis. Not only that, but paired with our L8 midbass/subwoofer, a clever installer might be able to create a four-speaker front stage installation, with no dedicated subwoofers; a true two-way system! The L4 opens up a world of possibilities for point-source, phase, and tonally idealized front-stage installations.



Photo 1: L4 midrange, shown slightly smaller than actual size

Legatia L4 in more detail

Like the Legatia L3, the Legatia L4 is a very unique driver that satisfies a need in the high-end car audio community for a small diameter, super wide-bandwidth midrange driver for the ultimate in point-source midrange applications.

The Legatia L4 is a 118mm (4.65-inch) wide-bandwidth midrange; the cone is an untreated pressed paper with extremely low moving mass. The cone design offers a wide dispersion pattern to make for flexible installation and speaker location, with multiple options for both on- and off-axis use, and the phase linearity of the wide-bandwidth design ensures coherent imaging and staging cues in the car audiophile system. The “point source” design ensures stable stereo imaging across the fundamental frequencies which define image placement and definition. The paper cone is critical to



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tame unwanted cone modes, resonances, and classic "cone breakup" associated with composite and other "hard" cones, but still be rigid enough for upper midbass and lower midrange authority.

What makes the L4 different than the L3 is the addition of an extended phase plug pole piece. The highest frequencies of audio emanate from the area around the center of the cone and the lower frequencies are produced by the area of the cone that is farther from the center. The phase plug pole piece extension improves the L4's performance and clarity by deflecting delicate midrange and treble tones forward of the driver, while minimizing distortion and improving the driver's ability to reproduce a wider bandwidth. The motor also utilizes copper Faraday shorting rings for impedance equalization. Rounding out the face of the driver is an inverted high-loss rubber surround that, in concert with the spider, provides the compliance needed for this 118mm midrange to play middle and upper midbass frequencies. You'll also know a higher-end Hybrid Audio midrange and midbass design by its inverted surround; this design feature allows for the use of a smaller height grille, and more flexibility in mounting options.

The motor of the design is conventional dynamic, utilizing a 1-inch voice coil, ferrite magnet, and a unique T-yoke to improve the speaker's power handling. The basket is a high-quality cast aluminum design, and contains a 118mm wide flange providing for the mounting of the driver via four screw holes (the use of 3 - 4mm cap head screws is ideal). The overall dimension of the L4 is very amenable for use in the car audio environment, boasting a depth of just 54mm, just 8mm more than the L3, for the ultimate in mounting flexibility. The terminations are standard spade terminals which have been gold plated to optimize contact and reduce resistance, and give the end user flexibility in low-temperature soldered options and crimp terminations.

Mechanical and electrical parameters are amenable to a variety of different installations and speaker locations. The high Qts and low Mms of the driver will allow it to be used in a purely infinite baffle configuration. Hybrid Audio and select Team Hybrids competitors have also had great success using this driver in a dipole configuration, a.k.a. completely "free-air", in larger vented enclosures, arrays, and in folded horns and transmission lines. It is important to note that sealed enclosures are not required; in fact, the L4 works optimally in areas where a large volume of area is available, such as in kick panel, floor boards, or foot wells, underneath dashboards, etc. You do not have to build enclosures for these speakers to perform as intended; a simple baffle attached to the car's chassis with available airspace at the rear of the baffle is all that is required; this driver quickly solves the universal installation quandary of having to build enclosures for car stereo speakers. Finally, the size of the L4 allows it to be mounted in typical locations within a vehicle, including kick panels, floor boards, and in some cases a-pillars and dash pods, as long as there is adequate airspace behind the driver to allow it to maintain proper damping and acoustic suspension.

The Legatia L4 might be slightly larger than the famed L3, but its performance makes up for the larger footprint area. If you can fit the larger L4 midrange, it is well worth your time to utilize this driver. It is the best 4-inch car audio midrange on the market today.



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Legatia™ L4 Thiele-Small Parameters

Overall Diameter	φ118 mm (4.65-inch)
Mounting Depth	54 mm
Bolt Circle Diameter	φ109.5 mm
Mounting Hole	φ94.5 mm
Recommended Minimum Crossover Frequency	160 Hz at 24 dB/octave highpass
P _{nom} Rated Power Input (No Crossover)	30 watts (AES Standard)
P _{max} Rated Power Input (No Crossover)	60 watts (AES Standard)
P _{max} (With Recommended Minimum Crossover)	150 watts
Frequency Range	90 Hz - 17,000 Hz, +/- 3 dB
Sensitivity	89 dB at 1 watt/1meter
M _{ms}	4.22 g
C _{ms}	706.4 um/N
BL	3.74 T*m
Voice Coil Diameter	25.5 mm (1-inch)
Impedance	4 Ω
DC Resistance	3.4 Ω
F _s	90 Hz (free air)
Q _{ms}	2.61
Q _{es}	0.61
Q _{ts}	0.50
X _{max}	3 mm (one way)
V _{as}	2.54 L
S _d	5000 mm ²



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Legatia™ L4 Impedance and SPL Verses Frequency Plots

