ALP Series

TECHNICAL DATA

LPDA Antennas

ALP500

Economical design ideal for fixed applications

ALP620

Skeletal design for decreased wind loading

ALP650 Series

Onboard amplifier ideal for long cable runs, phantom powered from Venue, UMC16 or Bias T

The ALP Series antennas are a Log Periodic Dipole Array (LPDA) design that provides a useful directional pattern over a broad frequency bandwidth. Many “gain antennas” (those designs with a directional pattern) are limited in bandwidth, making them awkward for use in multi-channel wireless systems and with frequency agile wireless systems. With VSWR below 2:1 from 450 to 862 MHz, the broad bandwidth of the ALP Series covers a broad section of the band used for Lectrosonics wireless microphone and IFB systems, yet still provides the directional pattern needed to cover long distances.

All ALP Series antennas are constructed of 1/8” FR4 fiberglass circuit board material and are extremely rugged. The ALP620 and ALP650 Series antennas include a protective cover over the BNC connector, making them suited for field production, while the more economical ALP500 is better suited for indoor installation. The perforated body of the ALP620 makes it resistant to wind loading outdoors. The ALP650 models are “receive only” models, featuring a built-in amplifier with adjustable gain for use with long coaxial cable runs and/or RF splitters.

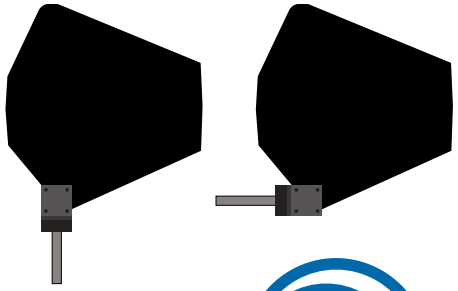
The antennas can be mounted horizontally or vertically by removing four screws and repositioning the mounting block. This helps to position the antenna away from nearby reflective surfaces to preserve more of the natural pattern of the LPDA design.

Versatile Mounting Block

The mounting block on all ALP Series antennas can accept three common sizes of threads:

- 1/4”-20 (tripod mount)
- 3/8”-16 (pro tripod mount)
- 5/8”-27 (mic stand)

A 3/8”-16 stud (Part #28769) is included with all ALP Series antennas.



The mounting block can be rotated to allow horizontal or vertical mounting

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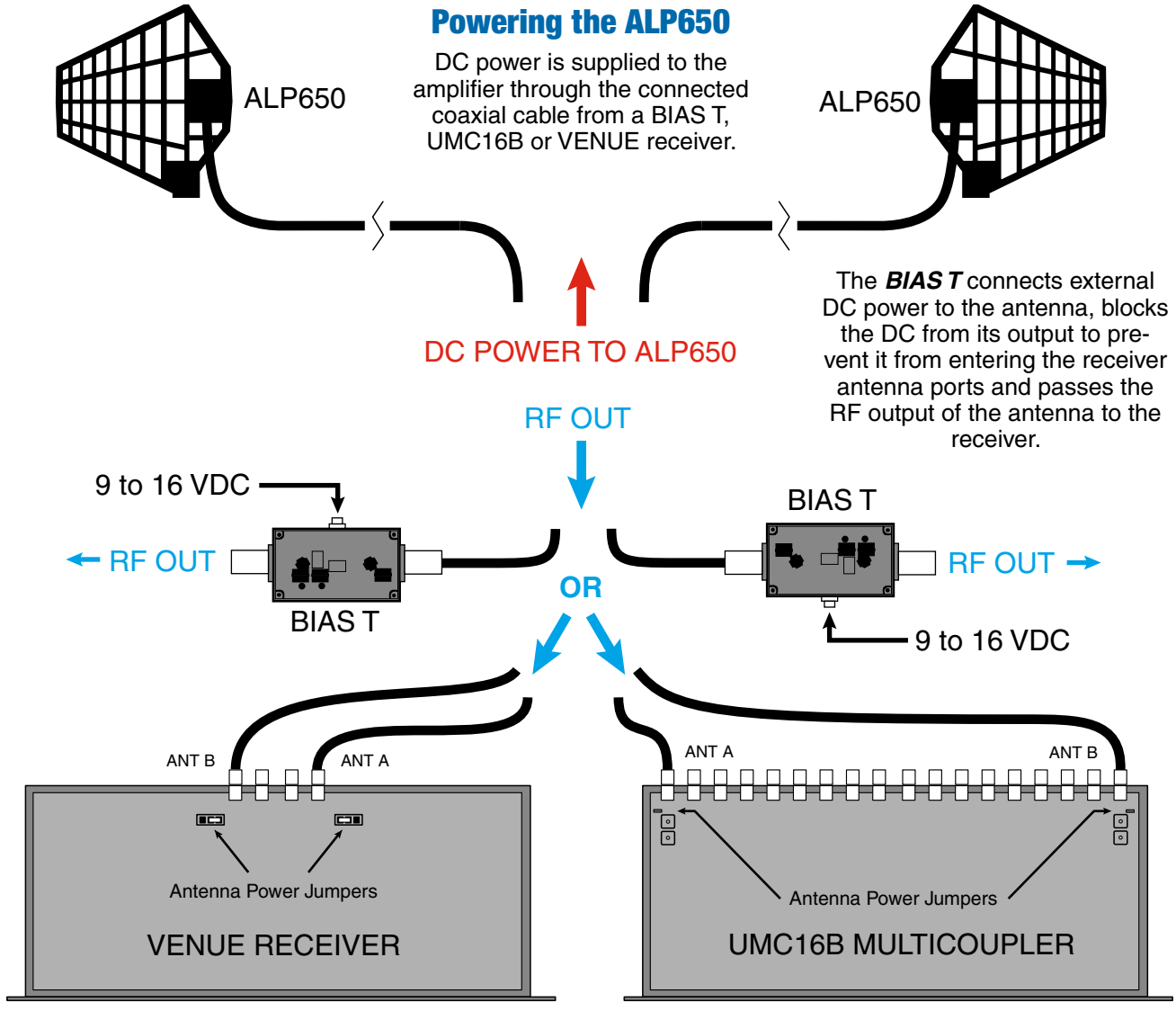
Powering the ALP650

DC power is supplied to the amplifier through the connected coaxial cable from a BIAS T, UMC16B or VENUE receiver.

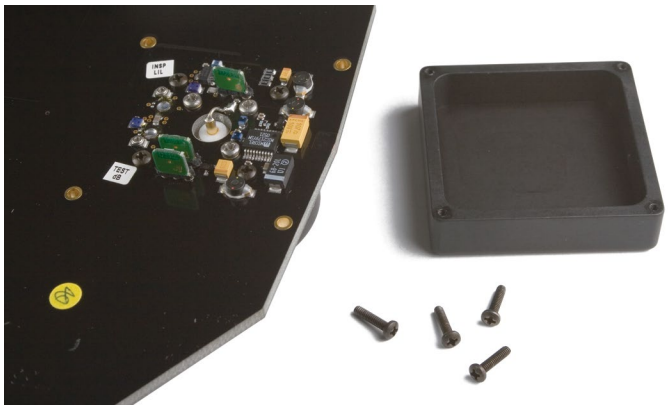


The ***BIAS T*** connects external DC power to the antenna, blocks the DC from its output to prevent it from entering the receiver antenna ports and passes the RF output of the antenna to the receiver.

The ***VENUE*** receiver also includes a DC power pass-through to operate the ALP650 antenna amplifier. Jumpers on the circuit board enable and disable the DC power.

The ***UMC16B*** multicoupler passes DC power from its supply to the antenna input ports to power the ALP650 through the coaxial cable. Jumpers on the circuit board enable or disable the DC power.

NOTE: The three examples shown above are mutually exclusive. Only one of them should be used in each installation.



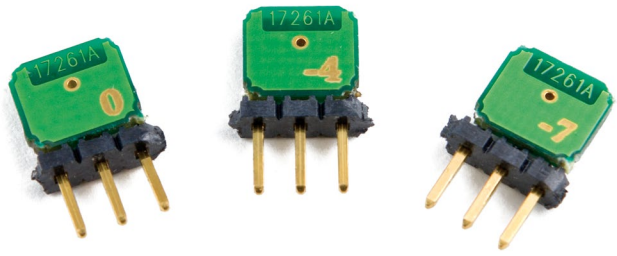
Adjusting Gain on the ALP650 Amplifier

In cases where the antenna is feeding a long coaxial cable run and/or a splitter, additional gain is generally needed. The goal is to compensate for the loss through the cabling and deliver a signal level equivalent to connecting the antenna directly to the receiver. Too much gain adds unnecessary noise and some risk of increasing IM (intermodulation) in the receiver. Too little gain runs the risk of dropouts in the reception.

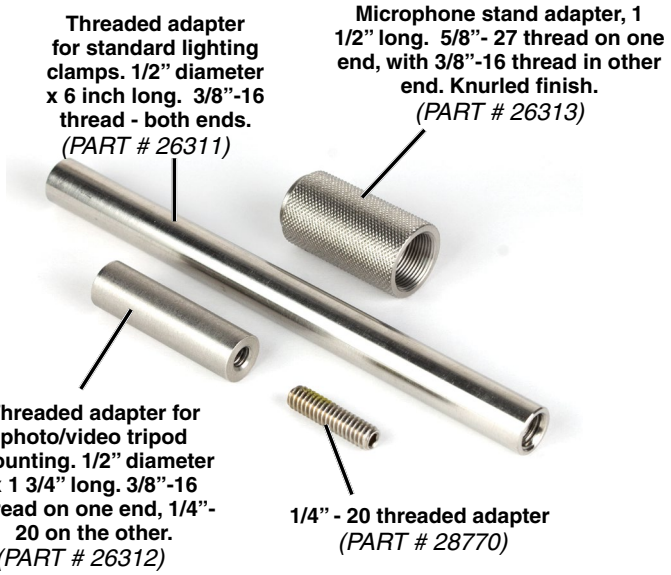
Three jumpers are provided to adjust the gain from the built-in amplifier:

Jumper Value	Attenuation	Resulting Gain
0	0 dB	12 dB
-4	4 dB	8 dB
-7	7 dB	5 dB

Add up the loss caused by long coaxial cable runs, antenna splitters, etc. and set the gain as closely as possible to the total loss. For example, consider a 4-way passive splitter such as the ZFSC41 with 6 db of loss at each output and a coaxial cable such as the ARG15 with 2 db of loss, for a total loss of 8 dB. In this case, the amplifier should be used with the 4 dB attenuator to produce the needed 8 dB of gain (12 - 4 = 8). One of the jumpers must be in the active position at all times.



Optional Mounting Adapter Kit *(part # ALPKIT)*



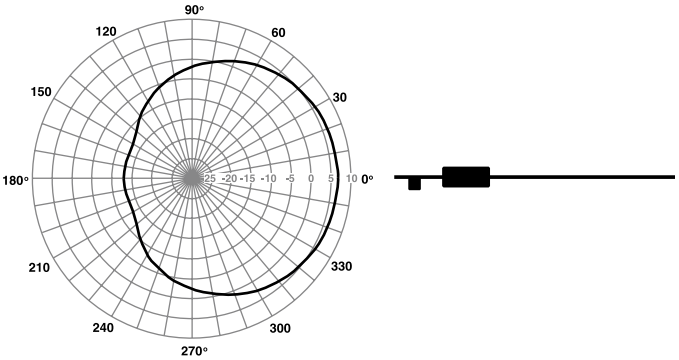
Optional Accessories

Mini-Circuits passive splitters:	**Loss:**
ZSC24 (2-way)	3.4 dB
ZSC41 (4-way)	6.8 dB
ZSC843 (8-way)	10.2 dB
Coaxial Cables:	**Loss:**
ARG2 (2 ft. RG-8/X - Belden 9258)	.25 dB
ARG2RT (2 ft. RG174/U - Belden 8216) (right angle connectors)	.50 dB
ARG15 (15 ft. RG-8/X - Belden 9258)	1.4 dB
ARG25 (25 ft. RG-8/U - Belden 9913F)	1.9 dB
ARG50 (50 ft. RG-8/U - Belden 9913F)	2.8 dB
ARG100 (100 ft. RG-8/U - Belden 9913F)	4.6 dB
ARX125 (125 ft. RG-8/X - Belden 9258)	12.5 dB

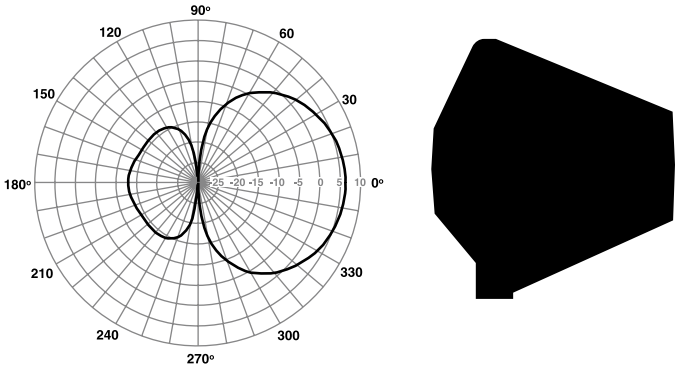
Orientation

A wireless transmitter antenna is generally oriented vertically, therefore, the ALP should also be oriented vertically. The transmitter antenna should be parallel with the plane of the ALP antenna as depicted below.

Typical Horizontal Pattern



Typical Vertical Pattern



Specifications

ALP500, ALP620

Pattern Gain:	+7dBi (isotropic) +4dBd (over dipole)
Range:	450-862 MHz
Weight:	ALP500: 14.2 oz. ALP620: 9.4 oz. ALP650/E Series: 12 oz.
Connector:	50 Ohm BNC
Dimensions:	12" high x 10.5" deep x 1.5" wide (ALP650 without mounting hardware)

ALP650 Series with RF Amplifier

Pattern Gain:	+7dBi (isotropic) +4dBd (over dipole
Passband:	
ALP650L/E (RoHS compliant)	470.000 - 692.000 MHz
ALP650M/E (RoHS compliant)	537.000 - 768.000 MHz
ALP650H/E (RoHS compliant)	640.000 - 862.000 MHz
RF Gain:	+12 dB with 0dB attenuator +8 dB with 4dB attenuator +5 dB with 7dB attenuator
Third Order Intercept:	+27 dBm @ input (+41 dBm output)
Weight:	12 oz. (all versions)
Power Requirements:	8V to 16V DC at the input jack; auto reset poly fuse protection circuit; constant power switching supply • 8V DC (125 to 145 mA) • 12V DC (83 to 106 mA) • 14.4V DC (69 to 89 mA) • 16V DC (60 to 80 mA)
Phantom Powering: UMC16B,	DC voltage supplied via coaxial cable by VRM input jack or BIAS-T power inserter (70 to 80 mA)
Power Consumption:	1.2 Watt nominal (switching regulator)

The ALP650 Series antennas have been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. The antenna generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause interference to radio receivers. Changes or modifications to this equipment not expressly approved by Lectrosonics, Inc. could void the user's authority to operate it.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

CE 1313 ⓘ

Applies to:
ALP650L/E, ALP650M/E
and ALP650H/E

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