JBL PROFESSIONAL by HARMAN

VTX SERIES

system solutions

VTX SERIES LASER ACCESSORIES USER GUIDE

VTX-LZ-K (Laser Kit)
VTX-LZ (Laser Unit)
VTX-LZ-PS (Power Supply)

VTX-LZ

VTX-LZ-PS

TABLE OF CONTENTS

COPYRIGHT

This document contains proprietary information that is protected by copyright.

JBL Professional reserves the right to change product specifications and information in this document without notice.

© JBL Professional / Harman International. All rights reserved.

IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings.
- Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- 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.
- Do not expose this apparatus to rain or moisture.

CB CERT. REF. DI 1400188-000
(FOR IEC60950-1/A1:2009)

FDA ACCESSION NUMBER: 1310840-000

WARNING

LASER SAFETY
Lasers are potentially dangerous. Please observe all safety precautions outlined below when using this equipment.

- Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.
- Never look directly into the laser, even when switched off since someone may activate the unit without warning.
- Always warn persons in the venue before powering on the laser and move people away from the target area before activating the laser.
- Always ensure that persons do not enter the laser target area while in use.
- Ensure that the power supply unit is readily accessible at all times so that the laser can be switched off immediately if necessary.
- Use the laser for the minimum amount of time, power off and disconnect the power supply unit as soon as adjustments are complete.
- Always ensure that the power supply unit is disconnected when the public has access to the venue and do not turn on the laser when audience members are present.
- Properly secure the laser unit(s) to the array to ensure that it does not fall off.
- Do not operate the laser while hand holding the laser unit. Do not use the laser in any manner that may cause accident or injury. Do not direct the laser beam at persons, animals, vehicles or aircraft.
- Do not use this laser for any other application than it is designed for.
- Do not remove warning labels from the VTX-LZ unit under any circumstances

SPECIFICATIONS

VTX-LZ-K Laser Kit Includes: 2x VTX-LZ and 1x VTX-LZ-PS

VTX-LZ Laser:

- Class 2 Green Laser
- Fan-cooling and on/off cycling for extended laser life
- Weather resistant when attached to VTX V25 (not fully water proof)
- Operation not guaranteed in direct sunlight
- Maximum recommended number of lasers on one power supply = 10
- Recommended for use in ambient temperatures below 40°C
- Includes mount adapter and locking quick release pin for secure attachment to VTX enclosure

VTX-LZ-PS Power Supply includes:

Power Supply:

- Lithium Ion 2600 mA-hour battery (not customer serviceable)
- 12 V DC supply voltage on XLR Pin 2
- Weather resistant design (not fully water proof)
- Typical battery time = 15 hours (single laser); 3 hours (5 lasers in parallel)

AC Adapter:

- Class 2 Power Supply
- Input: 100V -240V, 50/60Hz, 0.4A
- Output: 12.6 V DC, 0.9A
- Output Power 11.34 W max
- Center Pin = + voltage

INTRODUCTION

Precise VTX V25 vertical pattern control requires precise focus for optimum audience coverage and the VTX-LZ laser accessory provides a cost-effective installation tool to help streamline the setup process. Typically a single LZ is installed on the top enclosure of each VTX array to serve as a visual reference while setting the overall array site angle in accordance with JBL Line Array Calculator (LAC) predictions. The VTX-LZ-K laser kit consists of two VTX-LZ laser units and one VTX-LZ-PS power supply unit and is suitable for the installation of a Front-of-House (FOH) Left/Right system (one VTX-LZ for the FOH Left array, one VTX-LZ for FOH Right array). For detailed array calilbration and tuning, multiple lasers can be attached to a VTX array to represent circuit-level coverage and serve as a reference for measurement microphone placement. In this case, multiple lasers are mounted to the center enclosure of 3-cabinet circuits or the upper enclosures of 2-cabinet circuits.

PRODUCT DESCRIPTION

The VTX-LZ laser unit has been designed to securely attach to a VTX line array and when energized using the VTX-LZ-PS power supply unit, generates a bright green ray of light on-axis with the loudspeaker enclosure that it is attached to. Green lasers are significantly brighter than red lasers (approximately 20 times more visible) allowing the VTX-LZ laser to be used over long distances indoors or outdoors.

For strength, light weight and durability, the VTX-LZ unit is constructed with a die-cast aluminum base plate and a high impact resistance plastic cover. An aluminum-reinforced connector plate and a machined aluminum mounting assembly with heat-treated steel quick release pin (QRP) and lanyard attachment complete the assembly. Internal, physical alignment of the laser unit mounted inside the VTX-LZ housing is calibrated at the factory to ensure that the laser provides an accurate reference that is parallel with the on-axis site angle of the enclosure that it is attached to.

The VTX-LZ is powered by the VTX-LZ-PS power supply. The VTX-LZ-PS power supply unit is made out of a high impact resistance plastic cover with aluminum-reinforced connector plate and features a weatherproof power switch with metal-housing XLR connector. The VTX-LZ-PS power supply has an internal rechargeable battery and is supplied with an AC adapter for charging purposes.

Note: The rechargeable VTX-LZ-PS battery cannot be replaced by the user and must be serviced by JBL Customer Service or an Authorized Service Center. For any service questions please contact JBL Customer Service at 1-800-8-JBL-PRO.

A standard 3-pin XLR is used to connect the VTX-LZ-PS power supply to the VTX-LZ laser unit. Multiple VTX-LZ lasers can be daisy-chained and up to 10 VTX-LZ laser units powered from one single power supply. VTX-LZ-PS power supply battery life is approximately 15 hours when powering a single VTX-LZ laser unit and 3 hours when powering five VTX-LZ units.

ARRAY TRIM HEIGHT AND SITE ANGLE ADJUSTMENT

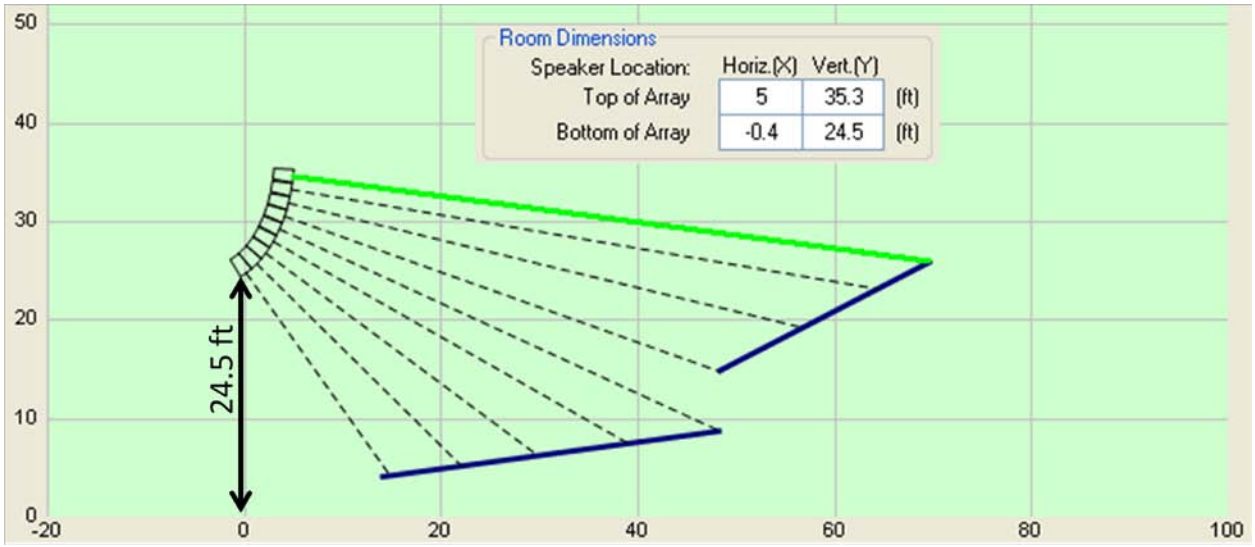
When properly mounted on the top enclosure of a VTX line array, the VTX-LZ laser provides a visual reference to confirm on-axis vertical site angle aiming (focus) of the array. Coverage simulations based on JBL Line Array Calculator II software (LAC II) indicate the desired location where the laser should aim and the VTX-LZ laser provides visual confirmation to assist with actual installation in the field.

To download JBL Line Array Calculator II please visit this link:

http://www.jblpro.com/catalog/general/SoftwareRegistration.asp

For 2-point suspension of VTX systems with front and rear chain motors, it is recommended that the array is suspended with equal load distribution on front and rear chain motors while being raised to the desired trim height (i.e., the array frame should be level while the array is being raised). Since the VTX suspension system is front-pivoting, the final array trim height is effectively set by the front motor and the array site angle is set by the rear chain motor.

With reference to LAC II, the normal installation procedure is to attach a tape measure to the lower front corner of the bottom VTX enclosure as a reference for setting array trim height. Once the array trim height is set, the front motor is turned off, the VTX-LZ is turned on and the rear motor is manipulated to adjust the array site angle while visually referring to the laser to ensure that top enclosure is pointed at the rear of the desired audience location.



Setting Array Trim Height and Site Angle Using JBL Line Array Calculator II and VTX-LZ

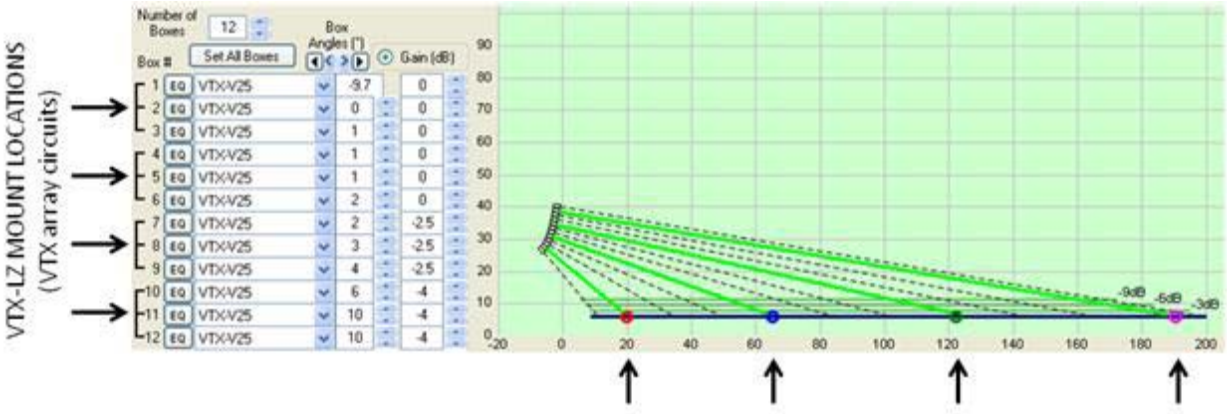
Overhead suspension of loudspeaker systems should be undertaken only by trained and qualified personnel. JBL Professional is not responsible for the use, misuse or misapplication of these products. Always refer to warning indications on the JBL Line Array Calculator II Array Configuration page.

USING MULTIPLE VTX-LZ LASERS

For advanced system tuning, multiple LZ lasers can be deployed to serve as site angle references for individual array circuits, assisting in physical measurement microphone placement to correspond with virtual measurement microphones shown in LAC.

Using JBL HiQnet Performance Manager™ control software and with reference to measured spatial response, circuit level gain shading and JBL Line Array Control Panel (LACP) frequency tapering adjustments are performed as a first step in system tuning. This initial step is referred to as array calibration and JBL LAC II / LACP simulations provide a good starting point. For the actual real world installation, VTX-LZ lasers mounted on array circuits can be used as a reference for microphone placement to verify and further refine the starting point gain shading and tapering parameters that were pre-determined in JBL LAC II / LACP and Performance Manager.

Once SPL and frequency response has been optimized on a circuit level, global equalization can then be applied to the entire array to compensate for room-related effects. For this step, global equalization can be based on the spatial average of all measurement microphones that were placed throughout the audience area with reference to VTX-LZ laser aiming locations. This patented approach to system measurement and tuning has been specifically designed into the workflow of Performance Manager (US patent 2008/0170729).



LAC II Frequency Response Probes (virtual measurement microphones)

Refer to VTX-LZ focal points for actual measurement microphone placement

Note: It is only necessary to deploy multiple microphones on one array of a FOH L/R system (FOH L or FOH R) and a single VTX-LZ laser unit on the other array to verify that vertical site angle focus is matched for both arrays. Once basic testing verifies that FOH L/R arrays are acoustically-matched, detailed calibration and tuning can be performed based on measurements conducted on the side of the FOH L/R system that has multiple measurement microphones (adjustments are simultaneously applied to the other array using stereo linking features available in Performance Manager).

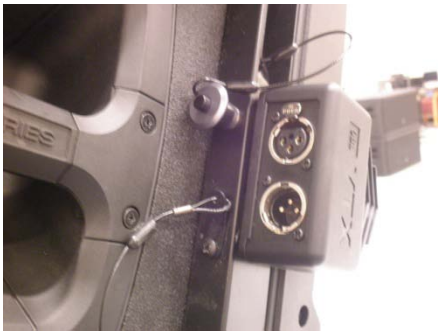
VTX-LZ INSTALLATION

For basic VTX system installation, a single VTX-LZ unit should be mounted on the top VTX enclosure as described in “Array Trim Height and Site Angle Adjustment”.

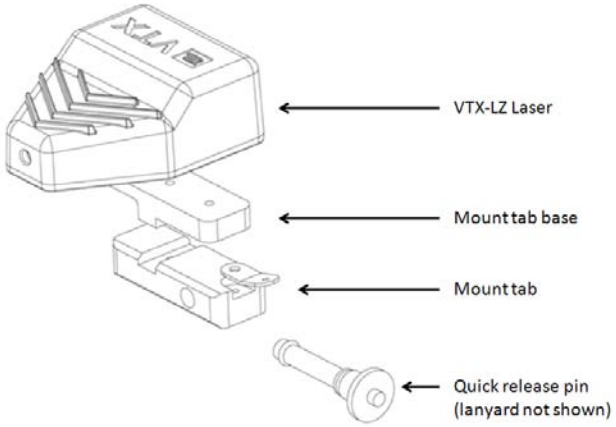
When multiple VTX-LZ units are installed on arrays with nominal enclosure circuiting, secondary lasers are typically attached to the center loudspeaker of 3-enclosure circuits. For 2-enclosure circuits (high performance mode), VTX-LZ units should be attached to the upper enclosures of each circuit.

As shipped, the mount tab for the VTX-LZ laser unit allows attachment to the front tube of the suspension frame on the left side of the enclosure when viewed from the front, i.e., FOH Right onstage side. The mount tab fits into the suspension tube slot and is then secured using the quick release pin (see photo sequence below).

To mount the laser on the right side of the VTX enclosure when viewed from the front (i.e. FOH Left onstage side), unscrew the mount tab and its base, rotate 180 degrees and then reattach. See photo sequence on the next page for full details.



VTX-LZ INSTALLATION (FOH L ONSTAGE SIDE OF ENCLOSURE)



VTX-LZ Mount Tab Parts

Mount tab orientation for FOH R Onstage use (as shipped)



Remove the mount tab including quick release pin (QRP) and lanyard



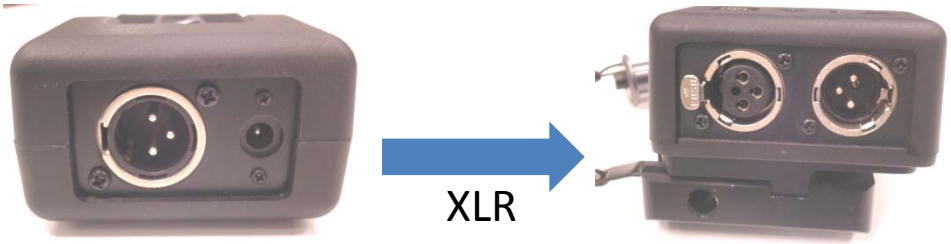
Remove mount tab base, rotate 180 degrees and re-install



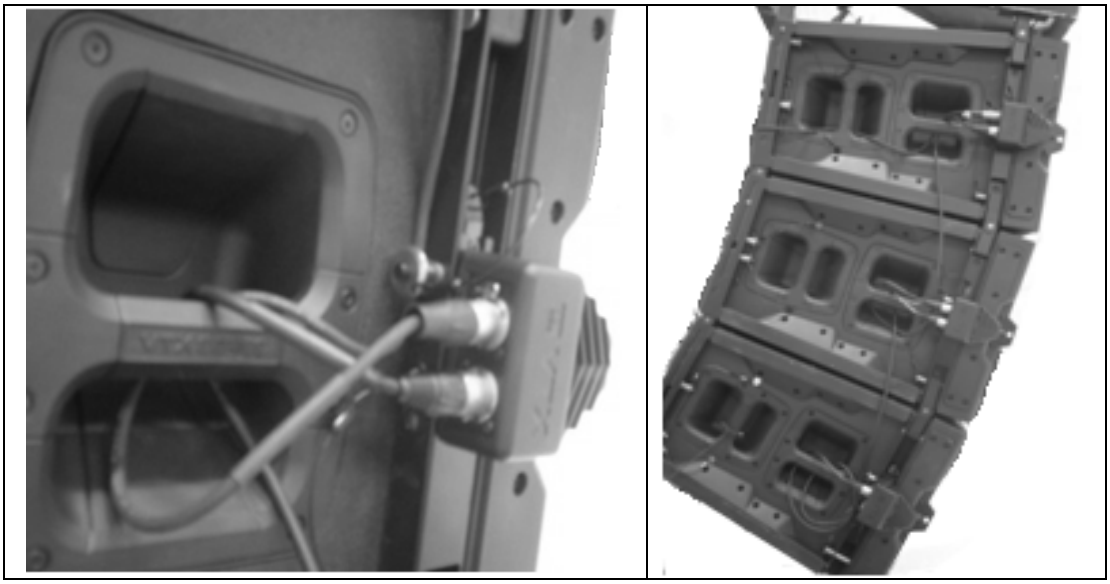
Rotate mount tab / QRP / lanyard assembly 180 degrees, re-attach to mount tab base

CONNECTING THE POWER SUPPLY

Standard 3-pin XLR cables can be used to connect the VTX-LZ-PS power supply to the VTX-LZ laser unit. One XLR cable connects from the power supply to the first laser unit and additional XLR cables can then be used to daisy-chain from the first unit to additional laser units. The power supply has a 12V positive DC voltage on pin 2. Ensure that XLR wiring is not reversed or isolated by transformers or opto-isolators.



VTX POWER SUPPLY **VTX LASER**



Connecting Multiple VTX-LZ Units

OPERATION

The laser is activated by pushing the contact button on the power supply unit.

Be sure to follow all safety precautions and warnings:

- Never look directly into the laser, even when switched off since someone may activate the unit without warning.
- Always warn persons in the venue before powering on the laser and move people away from the target area before activating the laser.
- Always ensure that persons do not enter the laser target area while in use.
- Ensure that the power supply unit is readily accessible at all times so that the laser can be switched off immediately if necessary.
- Use the laser for the minimum amount of time, power off and disconnect the power supply unit as soon as adjustments are complete.
- Always ensure that the power supply unit is disconnected when the public has access to the venue and do not turn on the laser when audience members are present.
- Properly secure the laser unit(s) to the array using the supplied quick release pin as described in the VTX-LZ Installation section on page 9.
- Do not operate the laser while hand holding the laser unit.
- Do not use the laser in any manner that may cause accident or injury.
- Do not direct the laser beam at persons, animals, vehicles or aircraft.

Maximum recommended number of lasers on one power supply = 10

Typical battery time: 15 hours for 1 laser; 3 hours for 5 lasers (fewer lasers = increased battery life)

When possible, connect the AC adapter to the power supply to recharge the internal battery.

JBL WARRANTY AND INFORMATION
The JBL Limited Warranty on VTX-LZ and VTX-LZ-PS remains in effect for one year from the date of the first consumer purchase.

WHO IS PROTECTED BY THIS WARRANTY?
Your JBL Warranty protects the original owner and all subsequent owners provided that:
A) Your JBL product has been purchased in the Continental United States, Hawaii or Alaska. (This Warranty does not apply to JBL products purchased elsewhere except for purchases by military outlets. Other purchasers should contact the local JBL distributor for warranty information); and B) The original dated bill of sale is presented whenever warranty service is required.

WHAT DOES THE JBL WARRANTY COVER?
Except as specified below, your JBL Warranty covers all defects in material and workmanship. The following are not covered: Damage caused by accident, misuse, abuse, product modification or neglect; damage occurring during shipment; damage resulting from failure to follow instructions contained in the User Guide; damage resulting from the performance of repairs by someone not authorized by JBL; claims based upon any misrepresentations by the seller; any JBL product on which the serial number has been defaced, modified or removed.

WHO PAYS FOR WHAT?
JBL will pay all labor and material expenses for all repairs covered by this warranty. Please be sure to save the original shipping cartons because a charge will be made if replacement cartons are requested. Payment of shipping charges is discussed in the next section of this warranty.

HOW TO OBTAIN WARRANTY PERFORMANCE
If your JBL product ever needs service, write or telephone us at JBL Incorporated (Attn: Customer Service Department), 8500 Balboa Boulevard, PO Box 2200, Northridge, California 91329 (818-893-8411). We may direct you to an authorized JBL Service Agency or ask you to send your unit to the factory for repair. Either way, you'll need to present the original bill of sale to establish the date of purchase. Please do not ship your JBL product to the factory without prior authorization. If transportation of your JBL product presents any unusual difficulties, please advise us and we may make special arrangements with you. Otherwise, you are responsible for transporting your product for repair or arranging for its transportation and for payment of any initial shipping charges. However, we will pay the return shipping charges if repairs are covered by the warranty.

LIMITATION OF IMPLIED WARRANTIES
ALL IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE LENGTH OF THIS WARRANTY.

EXCLUSION OF CERTAIN DAMAGES
JBL'S LIABILITY IS LIMITED TO THE REPAIR OR REPLACEMENT, AT OUR OPTION, OF ANY DEFECTIVE PRODUCT AND SHALL NOT INCLUDE INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS AND/OR DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH VARY, FROM STATE TO STATE.

CONTACT INFORMATION

Mailing Address:
JBL Professional
8500 Balboa Blvd.
Northridge, CA 91329

Shipping Address:
JBL Professional
Customer Service
8500 Balboa Blvd., Dock 15
Northridge, CA 91329
(Do not return product to this address without
first obtaining prior authorization from JBL)

Customer Service:
Monday through Friday
8:00am - 5:00pm
Pacific Coast Time in the U.S.A.
(800) 8 JBLPRO (800.852.5776)
www.jblproservice.com

On The World Wide Web:
www.jblpro.com

Professional Contacts, Outside The USA:
Contact the JBL Professional Distributor in your area.
A complete list of JBL Professional international distributors is
provided at our U.S.A. website www.jblpro.com

Product Registration:
Register your product online at www.jblpro.com/registration

© JBL Professional / Harman International. All rights reserved.