BARCO R9898351 Laser Diode Array Tool User Guide

Laser Diode Array Tool™

User guide
R9898351
R9898352

Barco nv Simulation Products
600 Bellbrook Ave, Xenia OH 45385
Phone: +1 (937) 372 7579
Fax: +1 (937) 372 8645
E-mail: eis@barco.com
Visit us at the web: www.eis.barco.com
Barco nv Avionics and Simulation Division
Noordlaan 5, B-8520 Kuurne
Phone: +32 56.36.82.11

Fax: +32 56.36.84.86
E-mail: info@barco.com
Visit us at the web: www.barco.com
Printed in Belgium

Contents

1 R9898351 Laser Diode Array Tool
2 SAFETY INSTRUCTIONS
3 INTRODUCTION
4 CONTENT AND DIMENSIONS
5 CONNECTIONS
6 OPERATING THE LDAT™
7 ADJUSTING THE LDAT™
8 Documents / Resources
8.1 References

R9898351 Laser Diode Array Tool

Changes

Barco provides this manual 'as is' without warranty of any kind, either expressed or implied, including but not limited to the implied warranties or merchantability and fitness for a particular purpose. Barco may make improvements and/or changes to the product(s) and/or the program(s) described in this publication at any time without notice.

This publication could contain technical inaccuracies or typographical errors. Changes are periodically made to the information in this publication; these changes are incorporated in new editions of this publication.

Copyright ©

Disposal Information

This equipment has required the extraction and use of natural resources for its production. It may contain hazardous substances for health and environment. In order to avoid the dissemination of those substances in the environment and to diminish the pressure on natural resources, we encourage you to use the appropriate take-back systems. Those systems will reuse or recycle most of the materials of your end of life equipment in a sound way.

The crossed-out wheeled bin symbol invites you to use those systems. If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administrator. You can also contact us for more information on the environmental performances of our products.

Federal Communications Commission (FCC Statement)

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be responsible for correcting any interference at his own expense

Guarantee and Compensation

Barco provides a guarantee relating to perfect manufacturing as part of the legally stipulated terms of guarantee. On receipt, the purchaser must immediately inspect all delivered goods for damage incurred during transport, as well as for material and manufacturing faults Barco must be informed immediately in writing of any complaints.

The period of guarantee begins on the date of transfer of risks, in the case of special systems and software on the date of commissioning, at latest 30 days after the transfer of risks. In the event of justified notice of complaint, Barco can repair the fault or provide a replacement at its own discretion within an appropriate period. If this measure proves to be impossible or unsuccessful, the purchaser can demand a reduction in the purchase price or cancellation of the contract. All other claims, in particular those relating to compensation for direct or indirect damage, and also damage attributed to the operation of software as well as to other services provided by Barco, being a component of the system or independent service, will be deemed invalid provided the damage is not proven to be attributed to the absence of properties guaranteed in writing or due to the intent or gross negligence or part of Barco.
If the purchaser or a third party carries out modifications or repairs on goods delivered by Barco, or if the goods are handled incorrectly, in particular if the systems are commissioned operated incorrectly or if, after the transfer of risks, the goods are subject to influences not agreed upon in the contract, all guarantee claims of the purchaser will be rendered invalid. Not included in the guarantee coverage are system failures which are attributed to programs or special electronic circuitry provided by the purchaser, e.g. interfaces. Normal wear as well as normal maintenance are not subject to the guarantee provided by Barco either.
The environmental conditions as well as the servicing and maintenance regulations specified in the this manual must be complied with by the customer.

Trademarks
Brand and product names mentioned in this manual may be trademarks, registered trademarks or copyrights of their respective holders.
All brand and product names mentioned in this manual serve as comments or examples and are not to be understood as advertising for the products or their manufacturers.

SAFETY INSTRUCTIONS

Overview

- Safety Instructions

1.1 Safety Instructions

 **WARNING:** The Laser Diode Array Tool™ or LDAT™ can only be serviced by a qualified Barco Technician, other servicing may result in hazardous radiation exposure.

Notice on Safety
The LDAT™ is built in accordance with the requirements of the international safety standards EN60950, UL 1950 and CSA C22.2 No.950, which are the safety standards of information technology equipment including electrical business equipment. These safety
standards impose important requirements on the use of safety critical components, materials and isolation, in order to protect the user or operator against risk of electric shock and energy hazard, and having access to live parts. Safety standards also impose limits to the internal and external temperature rises, radiation levels, mechanical stability and strength, enclosure construction and protection against the risk of fire. Simulated single fault condition testing ensures the safety of the equipment to the user even when the equipment's normal operation fails.
Operation Instructions
Before operating this equipment please read this manual thoroughly, and retain it for future reference.
Installation and Service Instructions
Installation and Service adjustments should only be performed by qualified BARCO personnel or by authorized BARCO service dealers.

 **WARNING:** Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

Safety Indications on the LDAT™

Following labels can be found on 1mW LDAT™:

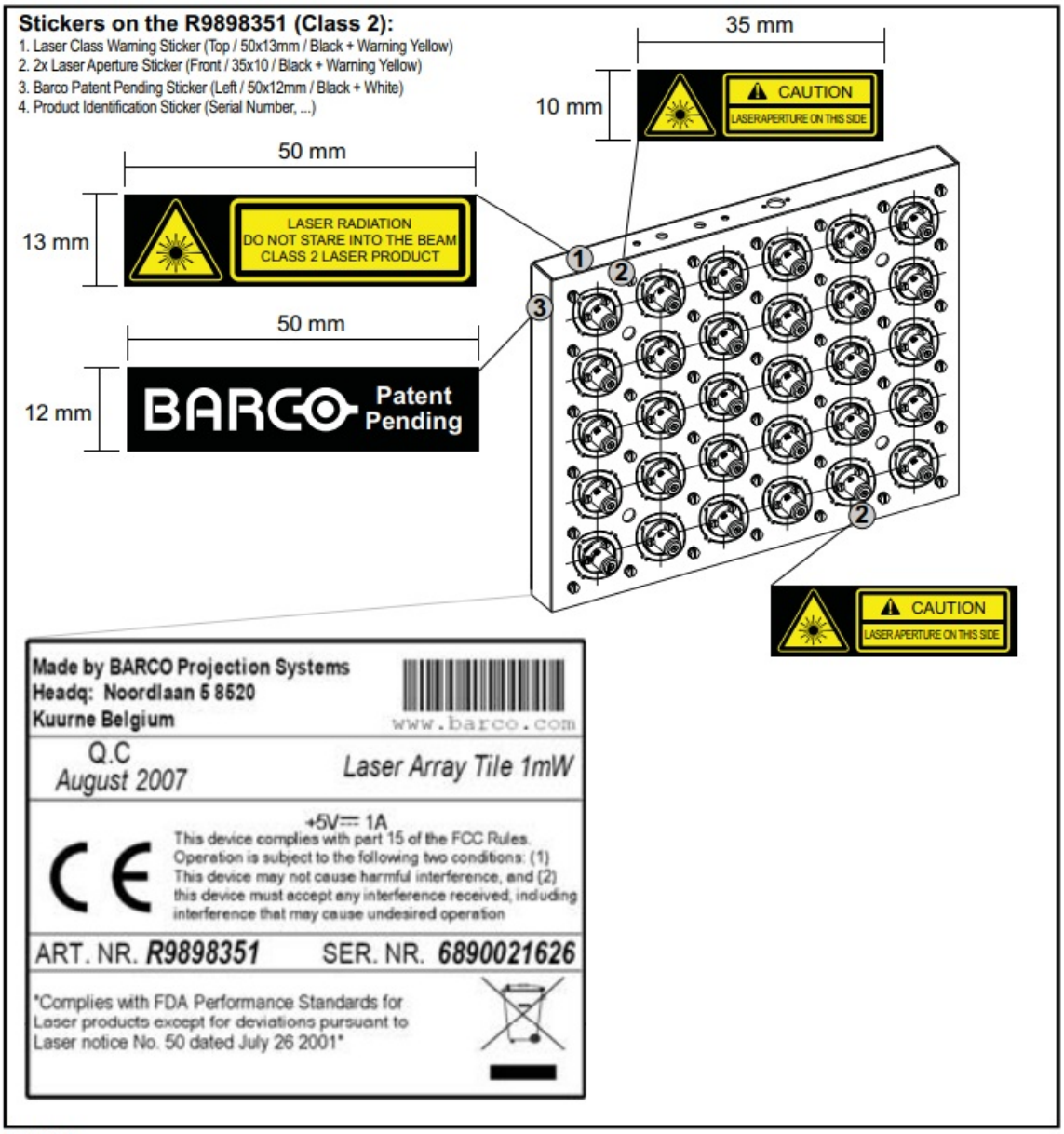

Image 1-1
Safety Indications on the 1mW Laser Array (R9898351)

Following labels can be found on 3mW LDAT™:

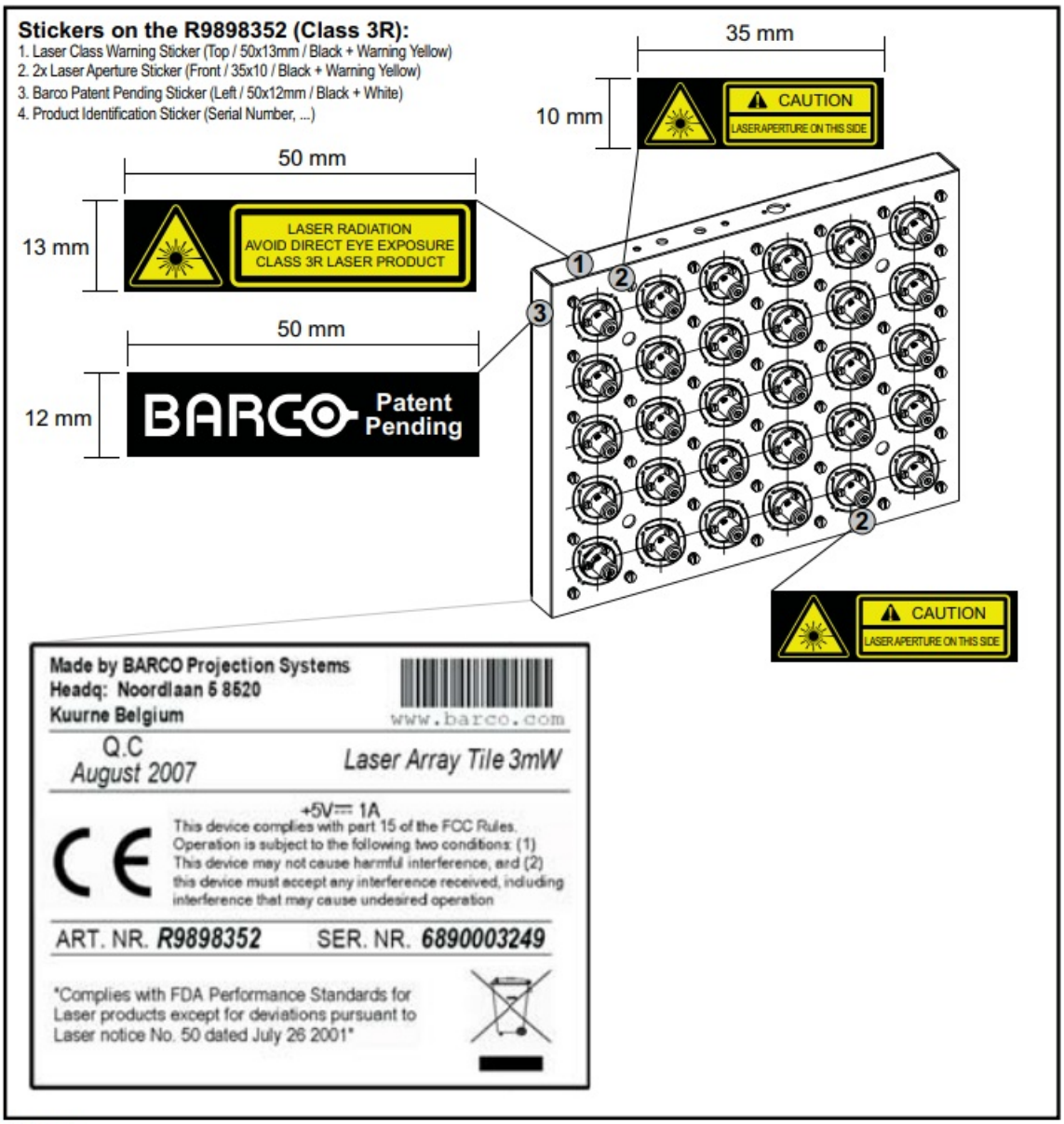

Image 1-2
Safety Indications on the 3mW Laser Array (R9898352)

Safety Warning on the LDAT™

For the 1mW Laser Array (R9898351): LASER RADIATION, AVOID DIRECT EYE EXPOSURE WITH THE LASER BEAMS, CLASS 2 LASER PRODUCT!

On the 3mW Laser Array (R9898352): LASER RADIATION, AVOID DIRECT EYE EXPOSURE WITH THE LASER BEAMS, CLASS 3R LASER PRODUCT!

Laser Aperture Location

The lasers are located on the front side of the Laser Array.

Laser Safety Class for the 1mW Laser Array (R9898351)

For the 1mW Laser Array (R9898351): The Laser Array is a Class 2 Laser Product.

For the 3mW Laser Array (R9898352): The Laser Array is a Class 3R Laser Product.

INTRODUCTION

2.1 LDAT™

WhyusetheLDAT™?

In multi-channel projection displays, externally generated test pattern grids are generally used as references for mechanical and geometric (electrical) alignment of the many display channels. These test patterns are designed to represent the location of significant landmarks that may be pre-calculated positions, according to the type of screen (flat, curved, front, rear, etc.), eye-points and position of the projectors.

Many solutions exist to visualize the pre-calculated points to guide display alignment: one can mark “invisible” dots using UV-paint, one can use a slide-projector to project these points, one can install small LED’s or fiber optic

strands in the screen surface for
example. None of these solutions is ideal: they can't be used on all types of screens, they require a complicated setup which may include direct access to the screen surface, several are inaccurate and expensive to correct, and many can only be used in a dark
environment.
The 'laser arrays' provide a method and device for generating a test pattern grid for being used as reference for aligning display channels without having the disadvantages of the solutions mentioned above.
The test pattern generator has a surface, each light source being moveably fixed on the surface and being adjustable such that a direction of light emitted from each light source can be set for directing light from the light source onto the screen.

2.2 Outline Lasers

Why use Outline Lasers?

Some Laser Light sources of the Laser Array are configured as Outline Lasers.
These Outline Lasers will mark the Outline corners of the desired projection area on the screen.
The Outline Lasers are the reference points for the mechanical alignment of the projectors.
This illustration shows a single display channel for a Dome Simulator Setup with a 5×6 Laser Array, 5 laser light sources are configured as Outline Laser, these mark 4 corners + 1 centre point of the Angular Field Of View1

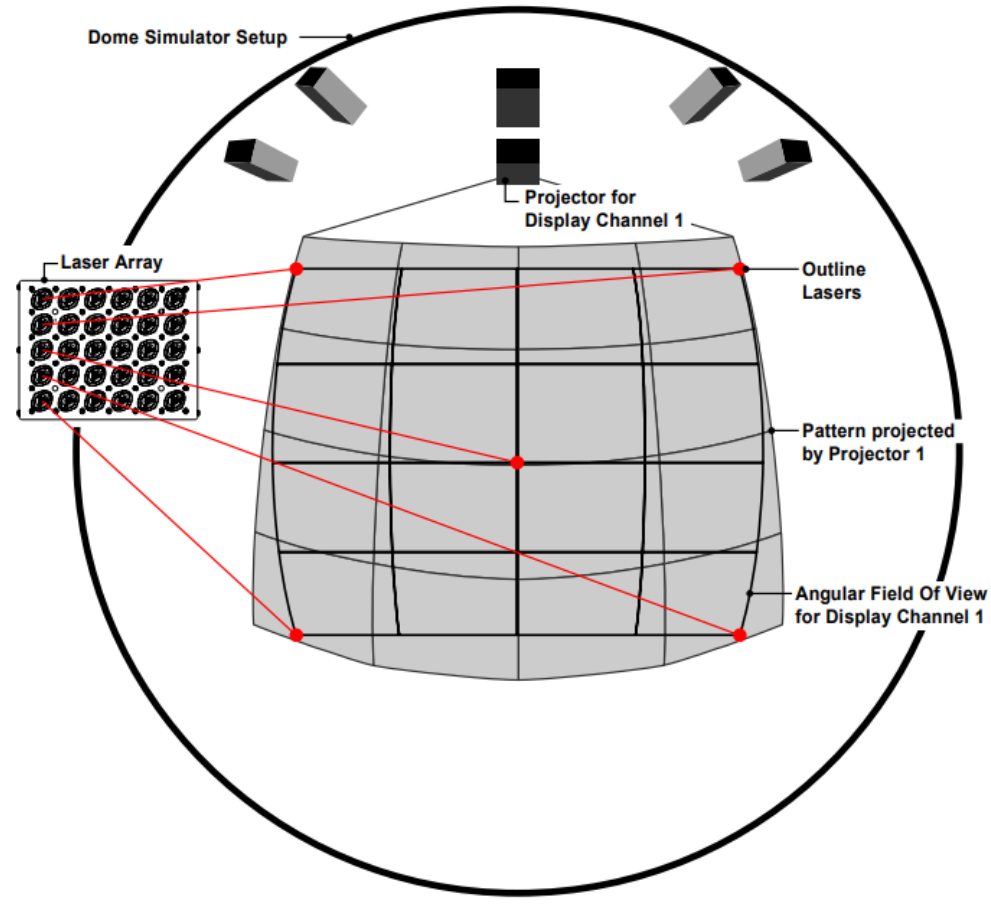

Image 2-1
Outline Lasers

2.3 Warp Lasers

Why use Warp Lasers?

The remaining laser light sources will be used as Warp Lasers.
These Warp Lasers will mark the geometric test pattern that is used for geometric (electrical) alignment of the projector.
This illustration shows a single display channel for a Dome Simulator Setup with a 5×6 Laser Array, 25 light sources are used to mark the Warp Test Pattern.

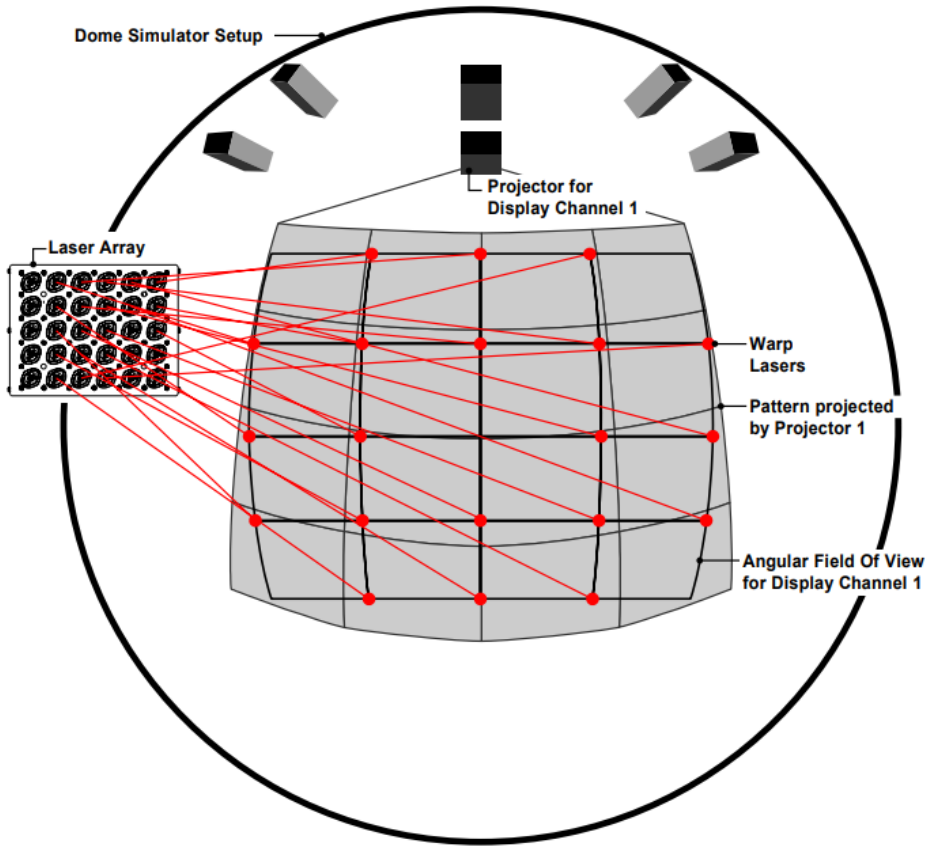

Image 2-2
Lasers Outline

CONTENT AND DIMENSIONS

Overview

- Content Laser LDAT™
- Dimensions

3.1 Content Laser LDAT™
Content

- Laser Array 6×5 Matrix
- Power Supply
- Adjustment Tube

3.2 Dimensions
LDAT™ Dimensions in mm (inch)

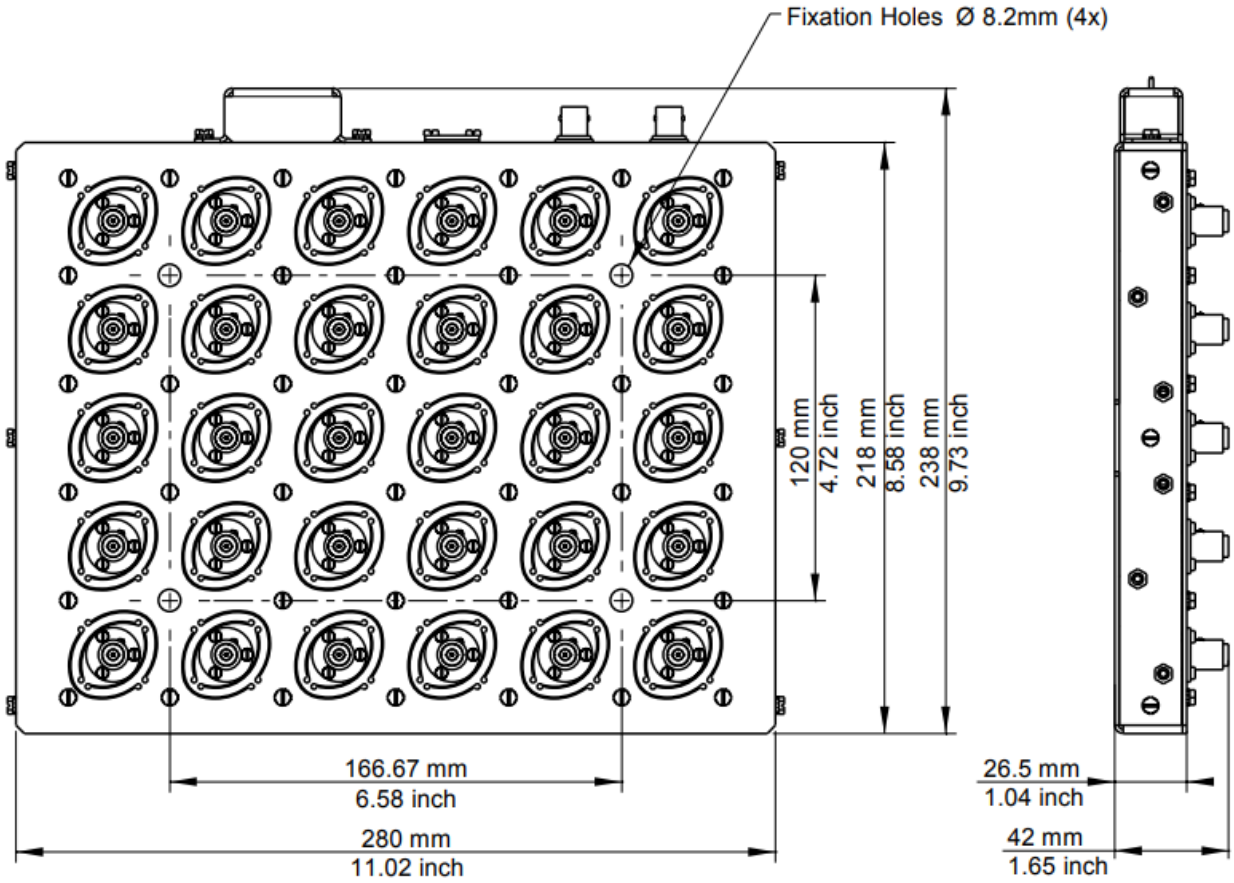

Image 3-1
Laser Array Dimensions

CONNECTIONS

Overview

- Connections Overview
- LDAT™ Power Connection

4.1 Connections Overview

Connections Overview

The following table gives an overview of the connectors on the LDAT™:

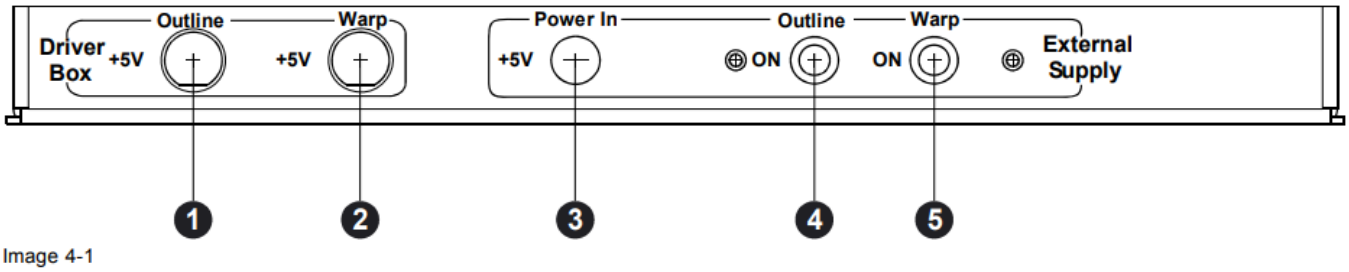

Image 4-1

1	Power Switch Outline Lasers
2	Power Switch Warp Lasers
3	+5 VDC Power Supply Connection
4	+5 VDC Power Supply Connection for the Outline Lasers (for future use)
5	+5 VDC Power Supply Connection for the Warp Lasers (for future use)

Tab l e 4-1
Laser Array Connections Overview

4.2 LDAT™ Power Connection

This connection is no longer needed when using an optional Driver Box, the Driver Box already contains a Power Supply for 3 Laser Arrays.

AC Power Supply Connection

1. Connect the Power Supply to the DC Power Connection on the Top Side of the LDAT™.

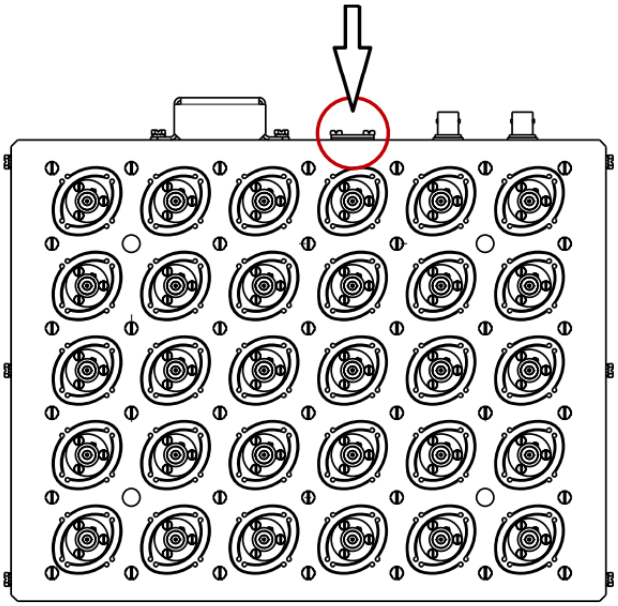

Image 4-2
Connect the Power Supply to the DC Power Connection on the Top Side of the LDAT™

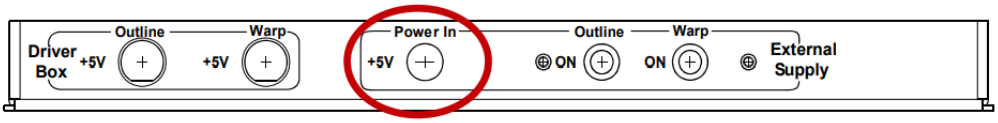

Image 4-3
Connect the Power Supply to the DC Power Connection on the Top Side of the LDAT™

2. Connect the Power Supply to the wall outlet

OPERATING THE LDAT™

Overview

- Introduction
- Operation

5.1 Introduction

Operating Modes of the LDAT™

The LDAT™ is operated using the switches located on top of the LDAT™ (These switches are protected by a switch cover).

5.2 Operation

WARNING: LASER RADIATION, AVOID DIRECT EYE EXPOSURE WITH THE LASER BEAMS, CLASS 2 or CLASS 3R LASER PRODUCT!

Operation of the LDAT™

1. Loosen the 2 screws of the Cover on top of the LDAT™ and remove this cover.

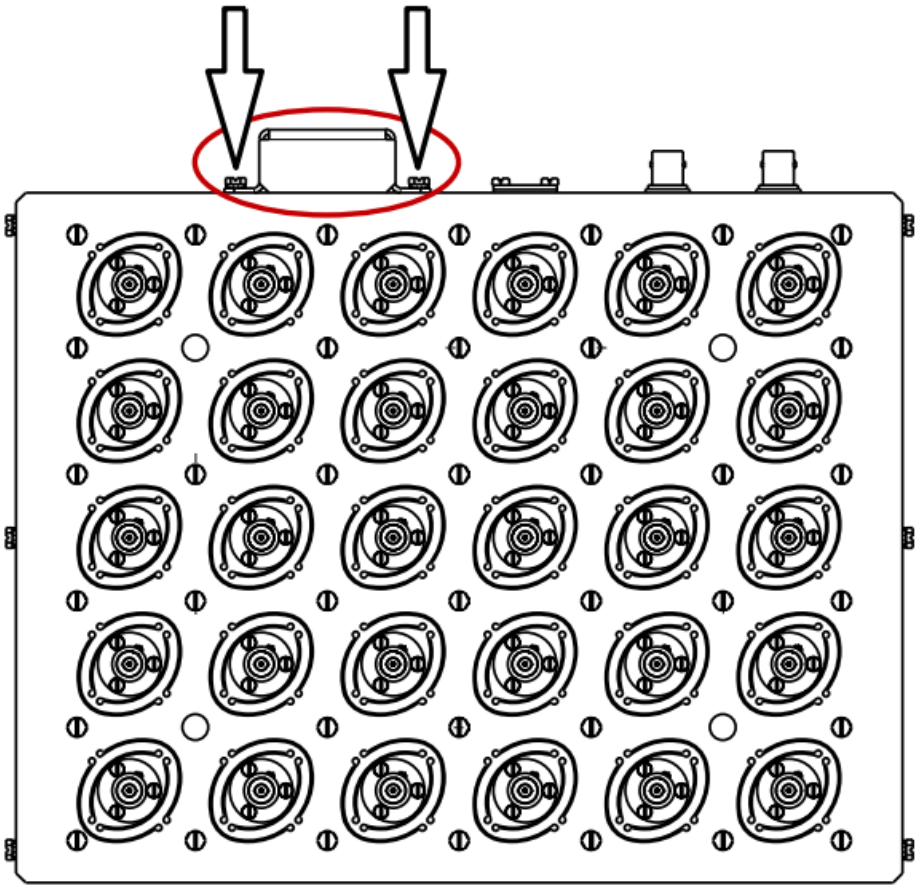

Image 5-1
Loosen the 2 screw of the Cover on top of the LDAT™

The Power Switches are now accessible.

2. Use the switches to switch the Outline and/or Warp Lasers On/Off.

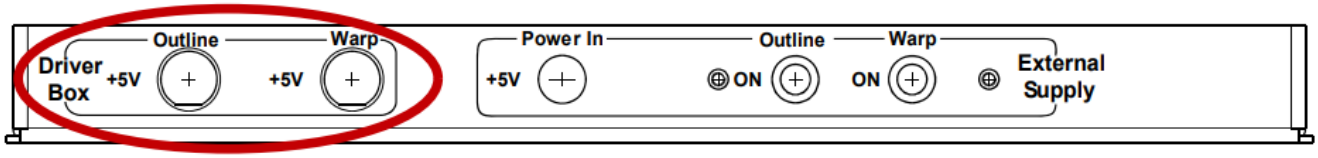

Image 5-2
Use the switches to switch the Outline and/or Warp Lasers On/Off

Switching on the Outline Lasers will activate the 4 (+1 spare) laser pointers that indicate the outline corners of the non-distorted projected image.
Switching on the Warp Lasers will activate the 25 laser pointers used for geometry alignment of the projector.

ADJUSTING THE LDAT™

Overview

- Adjusting the position of the Laser Beam

	WARNING: LASER RADIATION, AVOID DIRECT EYE EXPOSURE WITH THE LASER B EAMS, CLASS 2 or CLASS 3R LASER PRODUCT!
	WARNING: ALWAYS WEAR LASER SAFETY GLASSES WHEN ADJUSTING THE LASE R ARRAY.
	CAUTION: When adjusting the positions of the Laser Beams, wear protective clothing to a void direct skin exposure, e.g. by wearing gloves to protect the hands. This will also avoid reflections of the Laser Beam on e.g. wristwatches and/or jewelry.

6.1 Adjusting the position of the Laser Beam
Necessary tools

- Laser Safety Glasses
- Protectiveclothingtocovertheskine.g. apairofgloves
- Adjustment Tube

How to adjust the Laser Beam Position?

1. Put the Adjustment Tube over the desired Laser Holder.

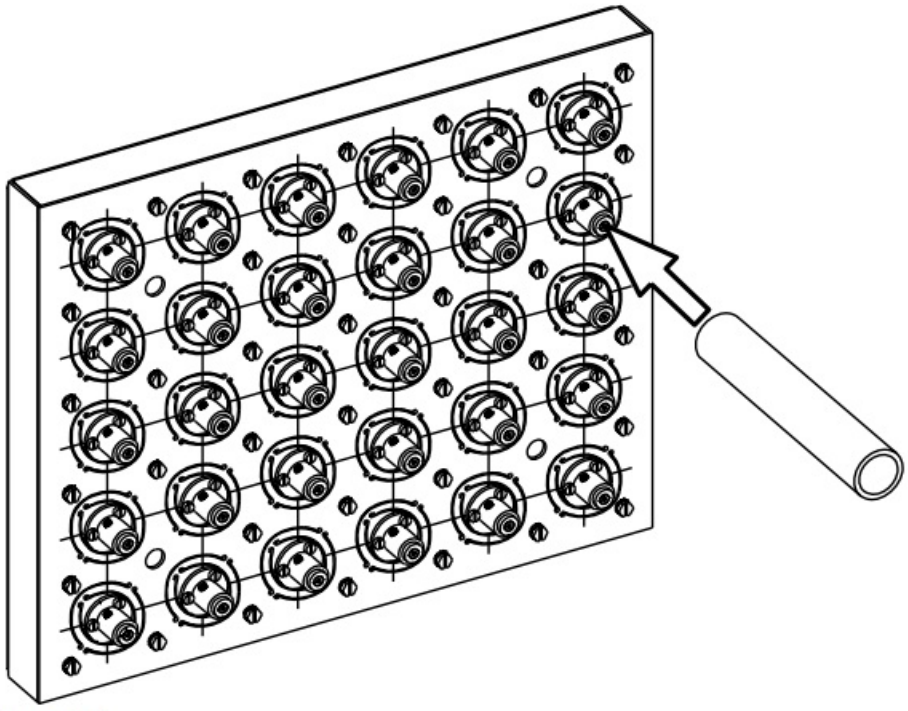

Image 6-1
Put the Adjustment Tube over the desired Laser Holder

2. Use the Adjustment Tube to move the Laser Holder to the desired **position.**

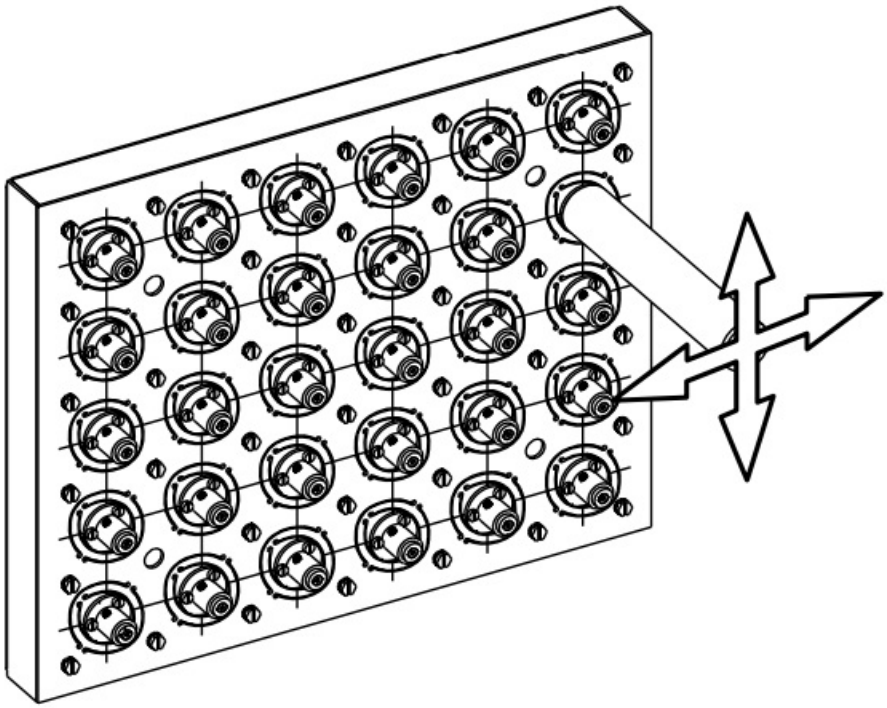

Image 6-2
Adjusting the position of the Laser Holder

Note: Due to the mechanical characteristics of the Laser Holders, repeat step 2 until the Laser Beam is in the perfect position.

3. Remove the Adjustment Tube.
   Now the Laser beam will mark the desired point on the screen
4. Repeat step 1 to 3 to mark all the desired points on the screen.

Revision Sheet
To:
Barco nv Avionics and Simulation Division
Noordlaan 5, B-8520 Kuurne
Phone: +32 56.36.82.11, Fax: +32 56.36.84.86
E-mail: info@barco.com, Web: www.barco.com

From:
Date:
Please correct the following points in this documentation (R5976700/01):
page
wrong
correct

Documents / Resources

	**BARCO R9898351 Laser Diode Array Tool** [pdf] User Guide R9898351 Laser Diode Array Tool, R9898351, Laser Diode Array Tool, Diode Array Tool, Array Tool

References

- Inspired sight and sharing solutions - Barco
- Manual-Hub.com - Free PDF manuals!
- User Manual