YAG Laser Profile Kit

Version 1.01

Installation Guide

NOTICE

Ophir-Spiricon Inc. reserves the right to make improvements in the product described in this manual at any time and without notice.

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Version 1.01

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Safety considerations

Optical radiation hazards

Usage of this system will require the operator to work close to the laser's optical path where exposure to radiation will be sufficient to warrant the use of protective equipment. The operator and other personnel should be protected against accidental exposure. Exposure hazards include reflected radiation as well as the direct beam. Protective eye shields and clothing should be used when operating this equipment.

Electrical hazards

The LPK utilizes only low voltages, supplied by the computer, therefore it poses little risk of electrical shock.

The computer should always be operated with properly grounded AC power cords. To prevent electrical shocks, do not operate the computer or power supply in the presence of moisture or conductive contaminants.

When installing or removing the Ophir-Spiricon frame grabber or adapter cards, the power to the computer should always be disconnected. The computer should always be operated with its covers in place and in accordance with its manufacturers recommendations.

Section 1

Introduction

Step 1

The Model LPK-YAG beam profiling system is a low cost system for sampling and analyzing YAG laser beams. The system consists of the following components:

CCD camera
LBA-PC analysis software
an optical sampling kit including a base plate, optical sampling and attenuation hardware, beam telescope (LPK-YAG-7 and LPK-YAG-16 only), and mounting hardware.

In addition, the customer must supply a computer with the following **minimum** specifications:

- 1 Gigahertz or faster x86 processor recommended
- 512 Megabytes main memory, 1 Gigabytes recommended.
- Graphics card with 1024 X 768 pixel resolution (or higher).
- A free high speed PCI slot.
- At least 10 Gigabytes of hard disk storage.
- Windows 2000 Professional, Windows XP Professional or Windows Vista
- A Windows compatible mouse, pointing device, or a touch screen.
- Optional: Printer with appropriate Windows compatible drivers.

Notice: PC operating system, component, and hardware manufacturers are constantly revising their products. Therefore Ophir-Spiricon, Inc. makes no guarantee that any one brand or model of Personal Computer or peripheral equipment will be compatible with any or all of the features contained in the LBA-PC application, either now or in the future.

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Section 2

Installing the software

Follow the instructions in the included LBA-PC operations manual to install the software and the frame grabber card. The LBA-PC software includes the files required to configure camera.

> *Note: When installing in either a Windows XP or 2000 system you must do so with **Administrative Privileges**.*

Ophir-Spiricon drivers are "unsigned". If you receive a message warning about unsigned drivers, just click "Yes" to proceed.

> ***Caution***
> *Electrostatic Discharge can result in permanent damage to electronic equipment. Always ground yourself by touching the system cabinet before touching any electronic components inside the computer. We strongly recommend using an anti-static wrist strap attached to earth ground.*

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Section 3

Optics Setup

Caution

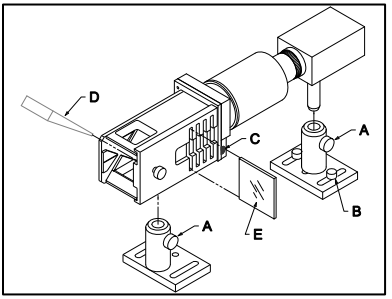
Take care handling the optics as they are very fragile and easily broken or scratched. Make sure that the optics are kept clean and free of dust or contaminates. High power lasers will destroy contaminated optics.

The illustrations below show the optics configured for a vertical beam delivery system.

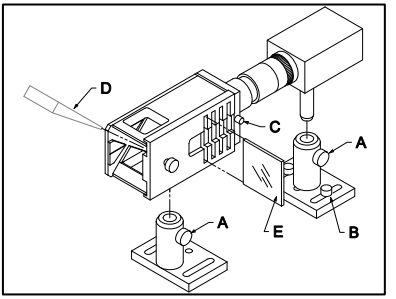
Note

The telescopes on the LPK-YAG-16 and the LPK YAG-7 are collimated at the factory. Do not turn the adjusting rings on the telescope, as this will reduce the accuracy of the calculations.

Assemble the optical sampler as follows.
Loosen the thumb screws on the post mounts (A) and slide the posts on the bottom of the camera / sampler assembly into the post holders. Note: it may be necessary to loosen the screws on the camera's post mount (B) and/or the clamp screw on the sampler (C) for the posts to slide in. Tighten all of the clamp screws and mounting screws.



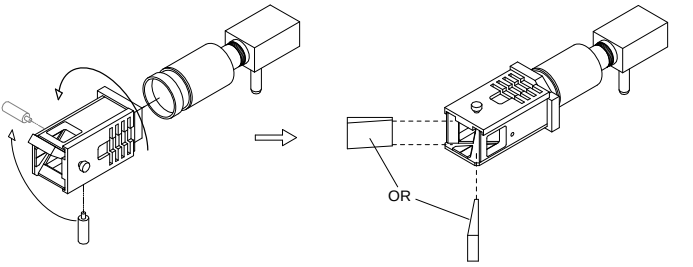
LPK-YAG-16



LPK-YAG-7

Loosen the plastic thumb screw on the Optical sampler and slide the wedge (D) into the holder as shown. Tighten the thumbscrew finger tight to secure the wedge. The provided ND filters (E) may be placed into the sampler to attenuate the sampled beam in operation.

For horizontal beam delivery systems, unscrew the post from the sampler and move it to the other side as shown. On the LPK-YAG-16, loosen the clamping screw on the sampler, rotate the sampler 90° and tighten the clamping screw. On the LPK-YAG-7 and LPK-YAG-2.5, loosen the silver thumb screw on the sampler and rotate the camera. In the horizontal position, the wedge may be moved to either side to accept beams from the left or the right sides.

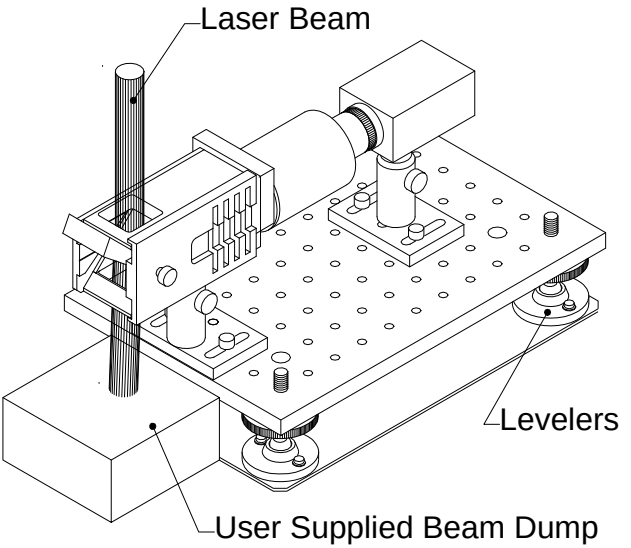


Horizontal Beam Operation

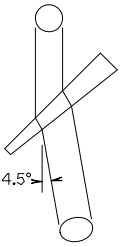
Connect the supplied camera cables between the camera and the computer. Refer to the camera's user manual for more information.

Please read the safety considerations on page 2!

Place the LPK in the beam path so that the beam will be directed into the beam sampler. The user **MUST** provide a beam dump for safely capturing the laser energy that passes through the beam sampler. Levelers will assist in directing the sampled portion of the laser beam into the camera detector.



Note that the transmitted laser beam will be redirected slightly by the sampler. The beam will be deflected by about 4.5° in the direction indicated. If the transmitted beam is to be utilized instead of discarded, be aware that the beam profile will also be stretched in the same direction causing, for instance, a round beam to become slightly elliptical. (The reflected beam will not be distorted.)



Refer to the LBA-PC manual for instructions on starting and using the acquisition software.