



Laser Alignment Accessory

User Manual



2I-24500 Issue 6

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Laser Alignment Accessory P/N GS24500

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1. Introduction

When an accessory is supplied as new from Specac, any mirrors or optical components used within the accessory will have been aligned to provide a signal on an Infrared spectrometer. It is normal for the accessory to have to be “fine tuned” for a specific spectrometer system on receipt. The mirrors and optics can be adjusted for a signal maximum by using the spectrometers own source and detection system.

If an accessory has not been used for some time, it is possible it will need to be realigned before it can be used properly in a spectrometer. If the mirrors are a long way out of alignment, the easiest way to try and create the beam path required for operation of the accessory is to use a source of coherent light rather than relying upon the IR radiation and detector within a spectrometer.

Specac provides the Laser Alignment Accessory P/N GS24500, which is used to align the mirror assemblies of any Benchmark™ baseplate mounted accessory in the Specac range. It contains a Class II laser that provides a visible (red color) light, such that the optical pathway of the accessory can be traced. In operation a discrete spot of light will be seen on the mirror surface of the accessory and the mirror can be adjusted to direct the light spot to the next reflecting surface etc.

Note: The laser beam does not provide a means of adjusting the optical components in an accessory to a specific focal point. (e.g, lenses in a Golden Gate ATR accessory). When an accessory has been aligned, the spectrometer systems energy source and detection system is used to “peak up” or fine tune the performance of the accessory.

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Specac accessories that are Benchmark™ baseplate compatible and can be re-aligned on the Laser Alignment Accessory are:-

Golden Gate ATR Accessories. P/N's GS10500, GS10515, GS10516, GS10523, GS10524, GS10525, GS10542, GS10642, GS10586 and GS10592.

Quest ATR Accessories P/N GS10800 Series

Gateway ATR Accessories P/N GS11165 Series.

Cyclone Gas Cells P/N's GS24102, GS24105, GS24110 Series.

Tornado Gas Cells P/N's GS24205, GS24210, GS24220 Series.

Minidiff Plus P/N GS04510.

Microfocus Beam Condenser P/N's GS02560, GS02561.

Variable Temperature Cell Holders P/N GS021525.

Variable Temperature Cell with cuvette holder P/N GS21530.

Fixed Angle Specular Reflectance Accessory P/N GS19820.

2. Unpacking and Checklist

Remove the Laser Alignment Accessory from its protective packaging.

Please check that the following have been supplied:

- 1 Laser Alignment Accessory.
- 1 Universal Mains Power Adapter (for use Worldwide).
- 1 Battery Power Adapter Lead.

3. Safety Warnings

Safety

The Laser Alignment Accessory carries a Class II laser and certain precautions must be followed to use this piece of equipment safely.

The unit carries an appropriate warning label (see Figure 1).

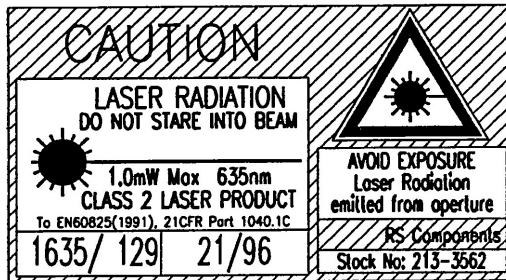


Figure 1. Warning Label On Laser Alignment Accessory

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The laser used is a Class II HeNe continuous wave 635nm device with a maximum power output of 0.8mW. This laser conforms to the emission criteria of BS (EN) 60825.

In operation the beam is exposed and has been factory set to strike the target end plate. (See Figure 2).

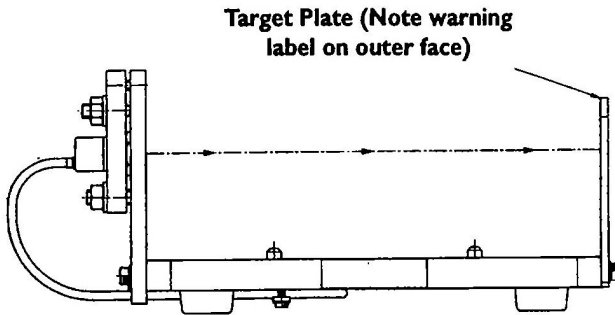


Figure 2. Side view of Laser Alignment Accessory. (Beam passing from left to right in this view)

Specifications

This accessory has been designed and tested in accordance with Safety Class II Requirements of IEC Publication 348, Safety Requirements for Electronic Measuring Apparatus and has been supplied in safe condition. This instruction manual contains some information and warnings that have to be followed by the user to ensure safe operation and retain the accessory in a safe condition. The accessory has been designed for indoor use. It may occasionally be subjected to temperatures between +5°C and -10°C without degrading its safety.

Radio Interference

This accessory satisfies the requirement of EEC Council Directive number 82/499/EEC on radio interference in that it conforms to BS800:1983.

The output voltage and power rating for the device is 5V and 350mW, irrespective of the mains supply voltage.

Caution

Do not stare into any exposed laser beam. Although at a low power, direct viewing of the beam along its axis can cause permanent damage to your eye.

To minimise any accidental exposure of laser beam radiation, one of the Benchmark™ type baseplate compatible accessories must be placed on the Laser Alignment Accessory before switching on. For the horizontal ATR accessories (Gateway, Quest and Golden Gate), the top plate must be on the optical unit to complete the beam path. When the input and output mirrors have been correctly aligned the laser beam will be projected to the target of the Laser Alignment Accessory.

4. Operation of the Laser Alignment Accessory

To provide power for the laser light, the mains transformer and lead or the battery power pack lead adapter is used. The battery power pack lead adapter allows for operation of the accessory if a mains power supply is not available.

There are 4 (four) specific plug pin adapter heads supplied to be used with the mains transformer body depending upon regional usage and the mains voltage supply. The appropriate plug pin head simply slide locates onto the terminals in the mains transformer body and clicks into position. Removal for change of adapter head is a reverse procedure.

Place the power feed cable in the accessory socket. (See Figure 3). Make sure that the power clip is connected in the correct way to avoid damage to the terminals.

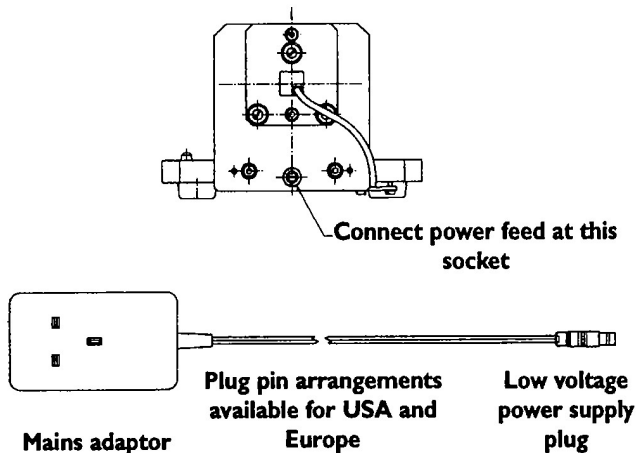


Figure 3. End view of Laser Alignment Accessory and power transformer with connecting lead and plug

Before switching on, place the Benchmark™ baseplate type compatible accessory to be aligned onto the Laser Alignment Accessory plate and secure the Benchmark™ single locking thumbscrew. (See Figure 4). Any accessory can be placed onto the Laser Alignment Accessory plate such that a left to right or right to left beam direction (as viewed from the front of the accessory) is set up. In this way any accessory can be more accurately aligned for the specific beam direction of a particular spectrometer system.

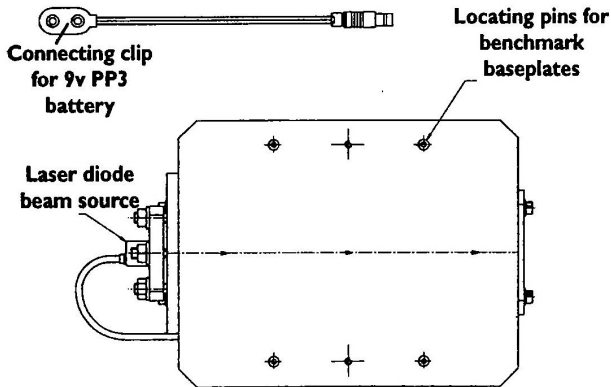


Figure 4. Plan view of Laser Alignment Accessory and battery power pack connecting lead and plug

When the laser is illuminated, adjust any mirrors, optics, etc, such that the red colored laser beam is projected to the target area (See Figure 2). When aligned switch off the laser and remove the accessory. The accessory can now be placed into a spectrometer and it can be finely tuned (“peaked up”) using the spectrometers own source and detection system.



EC Declaration of Conformity

This is to certify that the:

LASER ALIGNMENT ACCESSORY

24500series

Manufactured By:

SPECAC LIMITED

Conforms with the protection requirements of Council Directives 89/336/EEC and amendments 92/31/EEC 93/68/EEC, relating to the EMC DIRECTIVE, by the application of:

1) Testing to the following standard:

EN-61326:98 EMC (Emissions Immunity) requirements for Electrical Equipment for measurement, control and laboratory use.

2) Supported by SPECAC Technical File No. **TF24500**

and also conforms to the general safety requirements of Council Directives 73/23/EEC and 93/68/EEC, relating to the LOW VOLTAGE DIRECTIVE by the application of:

1) EN61010-1:1993, Safety Requirements for Electrical Equipment for Measurement, Control a Laboratory use, + Amendment 2:95.

EN-61010-2-010:94 + Amendment 1:96.

2) Supported by SPECAC Technical File No. **TF24500**

The Laser complies with BS60825/IEC825-1.

Responsible Person:

Name: Mr G. Poulter

Signature:

Position: Technical Director

Of: Specac Limited

Date: 7th July 2004

Serial No: conforms to the above

Name: **Signature:**

Position: **Of:**

Date:

Original to file/1 Copy to Customer:

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