



Polarizer Rotator 3" x 2" Slide Mount For GS12000 Series Polarizers

User Manual



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For GS12000 Series Polarizers

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Polarizer Rotator 3" x 2" Slide Mount For GS12000 Series Polarizers - P/N GS12500

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1. Introduction

Thank you for purchasing a Specac Product.

The polarizer rotator mount P/N GS12500 is a rotatable 3" x 2" slide mount allowing for the installation and use of the Specac GS12000 Series polarizers. The polarizer rotator 3" x 2" slide mount is simply installed into a spectrometer sample compartment via any conventional 3" x 2" slide mounting plate that is offered as the mount support system of the spectrometer itself.

A GS12000 Series polarizer is placed centrally into the polarizer rotator 3" x 2" slide mount and the polarizer can then be rotated to present a particular plane of polarized light for sample analysis.

In addition to the 3" x 2" slide mounting plate on the P/N GS12500 rotator mount, there are slot grooves on either side at the front of the rotator mount, whereby an Infrared Accessory that can be installed for use into a spectrometer via its own 3" x 2" slide mounting plate, can be directly attached to the polarizer rotator 3" x 2" slide mount and thus have the capability to be subjected to polarizable light from a suitable GS12000 Series polarizer as fitted.

This user manual will instruct how to place a GS12000 Series polarizer into and for use of the polarizer rotator 3" x 2" slide mount. For any GS12000 Series polarizer that is to be used, please consult the polarizers own user instruction manual. (Document 2I-12000-1)

2. Unpacking and Checklist

The polarizer rotator 3" x 2" slide mount P/N GS12500 can be supplied on its own or together with a dedicated GS12000 Series polarizer, if both these items have been ordered as an FTIR Infrared Polarizer Kit via P/N's GS12501, GS12502, GS12503, GS12504 or GS12505.

If the items have been ordered as a Kit they are supplied in a plastic carry case. If the items have been ordered separately, they will be supplied in their own individual packing.

On receipt please check that the following items have been supplied.

- A GS12500 polarizer rotator 3" x 2" slide mount in a Styrofoam box. (If ordered as P/N GS12500.)
- A GS12000 Series polarizer of your choice and a polarizer rotator 3" x 2" slide mount P/N GS12500 in a plastic carry case. (If both items ordered as an FTIR Infrared Polarizer Kit).

Caution!



*When removing the items from their packing be especially careful with the GS12000 Series polarizer if ordered. The polarizer grid is very fragile and you **must** avoid contact with the polarizer substrate surface, otherwise the polarizer grid could be irreparably damaged. It is advisable to store the GS12000 Series polarizer in its original packing container when not being used.*

3. Instructions for Use

The Polarizer Rotator 3" x 2" Slide Mount

The polarizer rotator 3" x 2" slide mount (1) is shown in Fig 1. for its front view and in Fig 2. for its rear view.

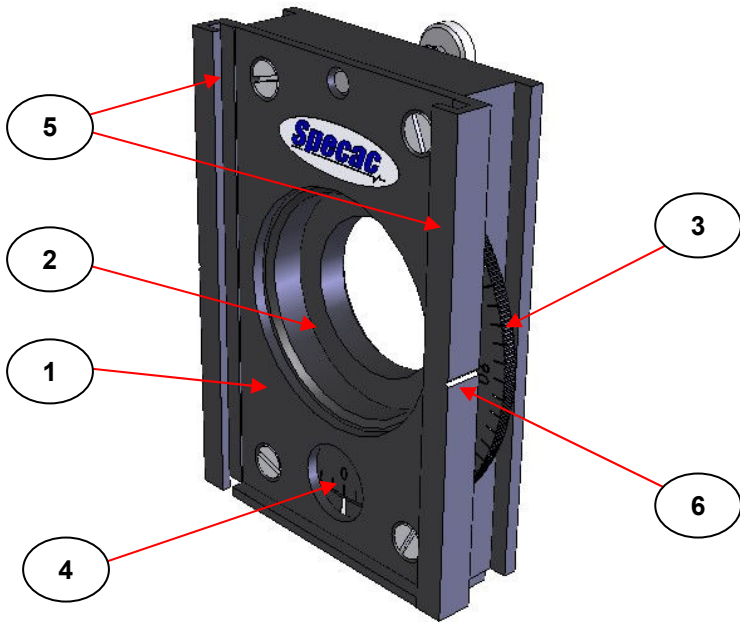


Fig 1. Front Side View of Rotator 3" x 2" Slide Mount P/N GS12500

In operation, as shown from the front side view (**Fig 1.**), a GS12000 Series polarizer is placed into the aperture opening (2) using the spring clip ring mount of the GS12000 Series polarizer to obtain a tight, secure fit. Once the polarizer has been correctly positioned into the aperture (2), it can be rotated to present to or discriminate for a particular angle of polarized light from rotational adjustment by hand of the angular, graduated wheel (3). From a correct fitting of the polarizer

into the aperture (2), and by rotation of the graduated wheel (3), the correct angle of polarized light from the polarized grid orientation laid onto the substrate material of the polarizer itself, can be read from the angle viewing window (4).

The front of the polarizer rotator 3" x 2" slide mount (1) carries the two groove slots (5) that allow for the mounting of an FTIR accessory that carries a 3" x 2" slide mounting plate itself for installation into a spectrometer. The 3" x 2" slide mount plate of the Accessory simply slides into the two grooves (5) and in this way a polarizer can be introduced into any beam path of light to or from the Accessory (and a sample) to discriminate for polarized light.

When a 3" x 2" slide mounted Accessory is installed for use into the polarizer rotator 3" x 2" slide mount (1) using the groove slots (5), the angle viewing window (4) will be obscured from reading a particular angle that may be set on the GS12000 Series polarizer itself. However, there is an additional marked notch (6) on the side of the rotator mount (1) that can be used to align to any of the angle marks on the graduated wheel (3) for reading if required.

Note: *The angle reading from alignment of a graduated mark on the wheel (3) with the notch (6) will always be a difference of 90° to the angle reading as displayed at the viewing window (4).*

In operation, as shown from the rear side view (**Fig 2.**), the polarizer rotator 3" x 2" slide mount (1) (ideally with a GS12000 polarizer already fitted) is installed into the 3" x 2" slide mount plate of a spectrometers mount system using the slide mount runners (7) at the side edges of the rear plate assembly. Also at the rear, there is a tightening thumb screw (8). This can be used to secure a 3" x 2" slide mounted Accessory when attached to the rotator mount (1) via the groove slots (5) as described. Turning the screw (8) clockwise will apply pressure to the 3" x 2" slide plate of the Accessory forcing the plate overall against the groove slots (5) for a tighter fit with no lateral movement of the Accessory. The screw (8) needs to be removed completely if the 3" x 2" slide mount plate system of the spectrometer does not allow for a correct beam height fit of the polarizer rotator 3" x 2" slide mount (1) when the screw (8) is in place.

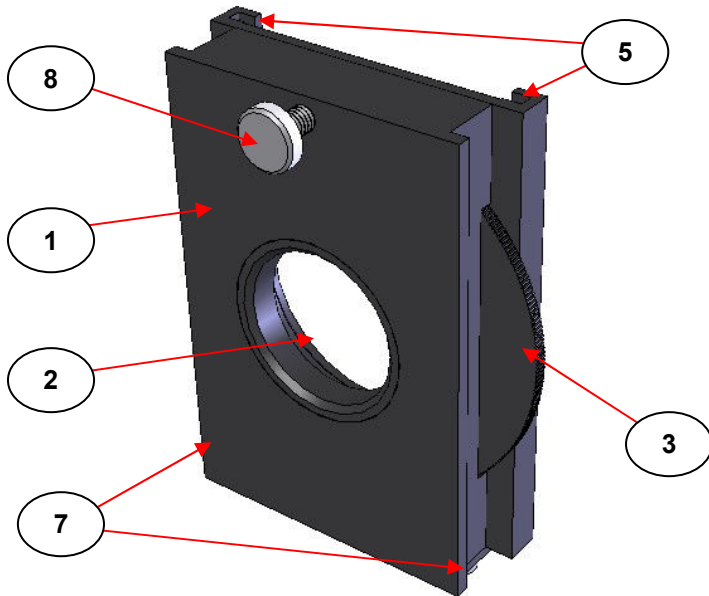


Fig 2. Rear Side View of Rotator 3" x 2" Slide Mount P/N GS12500

Fitting a GS12000 Series Polarizer into the Polarizer Rotator 3" x 2" Slide Mount P/N GS12500

As shown at Fig 3. and Fig 4. please see how a GS12000 Series polarizer is fitted into the polarizer rotator 3" x 2" slide mount (1).

From **Fig 3.** the GS12000 Series Polarizer is to be positioned within the aperture (2) of the rotatable mount (1) with the knurled surface side of the spring clip ring mount of the polarizer facing outwards such that the metal tab is seen. In this way the polarized grid deposited on the surface side of the substrate material of the polarizer is facing inwards to aperture (2) of the rotatable mount (1) and helps to minimize any risk of accidental touching of this surface from finger print marks, when installing the polarizer.

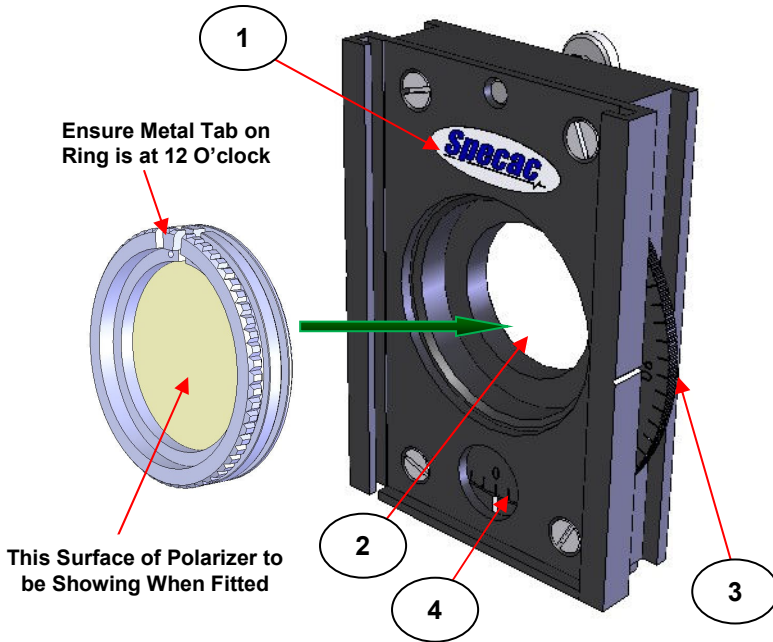


Fig 3. Insertion of GS12000 Series Polarizer into the Polarizer Rotator 3" x 2" Slide Mount

Tip: *It is advisable to wear gloves when handling any polarizer to avoid getting fingermarks on the polarizer substrate material (1) and to prevent any damage to the polarizer grid.*

To mount the GS12000 Series polarizer firmly into the aperture port (2), the metal tab on the spring clip ring mount of the polarizer may need to be bent slightly outwards, away from the centre of the polarizer. This movement will very slightly alter the overall circumference of the retaining spring clip ring for a tighter fit into the circular recess of the aperture (2) of the rotatable mount (1). Introduce the smooth face of the spring clip ring mount of the polarizer towards the aperture (2) and very carefully push the polarizer - BY THE RING

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MOUNT PART ONLY – into the aperture port (4) until it engages and is a nice tight fit. If it is a loose fit, adjust the tension by bending the metal tab accordingly. If doing so, be careful not to touch the substrate material surface of the GS12000 Series polarizer..

As shown in **Fig 3**, the metal tab on the spring clip ring mount of the GS12000 Series polarizer should be aligned for insertion into the aperture (2) at a 12 O'clock position with respect to the polarizer circular face. (See **Fig 4**.) When the polarizer is installed in this position in the aperture (2), the lines of parallelism of the polarizer grid are running from the 12 O'clock to the 6 O'clock position of the polarizers circular face. When inserting the polarizer in this orientation ensure that the angle mark showing in the rotator mount (1) viewing window (4) is set at the 0° (zero degrees) position by necessary rotation of the graduated wheel (3). The lines of parallelism for the polarizer grid can be considered to be at an angle of 0° (zero degrees) and by convention in this orientation of the polarizer, light that is S (perpendicular) polarized is transmitted through the polarizer.

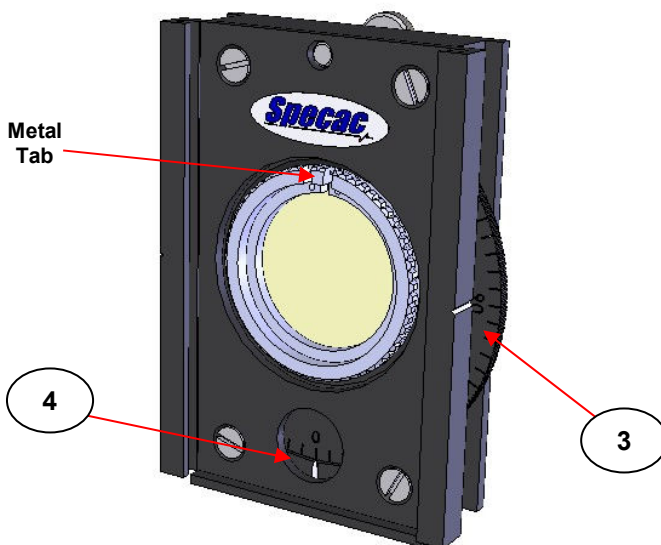


Fig 4. A GS12000 Series Polarizer Fitted into P/N GS12500

Rotating the GS12000 Series Polarizer

The GS12000 Series polarizer can be rotated and set for any angle from 0° through to 90° when positioned in the polarizer rotator 3" x 2" slide mount (1).

With the GS12000 Series polarizer being "fixed" in such a position in the aperture (2) as described, when the graduated wheel (3) is rotated such that the 90° mark is showing in the viewing window (4), then the lines of parallelism of the polarizer grid would be running from a 9 O'clock to 3 O'clock position whilst in the aperture port (2). The lines of parallelism can be considered to be at an angle of 90° (ninety degrees) compared to the 0° positioning from installation and by convention in this orientation of the polarizer grid in the rotatable mount (1), light that is P (parallel) polarized is transmitted through the polarizer.

General Cautions and Care of the Polarizer

The GS12000 Series polarizer grid consists essentially of very fine aluminium lines being deposited on a substrate material and they can very easily be damaged due to incorrect handling of the polarizer. There is a certain level of protection of the GS12000 Series polarizer surface when it is fitted in the rotator 3" x 2" slide mount (1), but should the polarizer grid be affected in any way by finger marks, dust or dirt, it is very likely that the performance of the polarizer will be seriously impaired, and in certain cases the damage that has been sustained is irreparable. A new polarizer will be required.

Hence, some general rules to follow to care for your polarizer are:-

- Do not touch, rub or abrade the polarizing grid or substrate surface.
- Do not wash the polarizing grid with organic solvents.
- Any dust that may be present on either surface of the substrate material should be gently blown clear using an air or nitrogen line.
- Always store the polarizer in its original packing container when not being used. If an FTIR Infrared Polarizer Kit was supplied, the GS12000 Series polarizer may be kept fitted into the rotator 3" x 2" slide mount (1) and the whole assembly of parts can be stored in the supplied plastic carry case.

4. Legend – Bubble Number Part Identification

- (1) Polarizer rotator 3" x 2" slide mount.
- (2) Aperture to mount a GS12000 Series polarizer.
- (3) Rotatable, graduated wheel to rotate the polarizer.
- (4) Viewing window for angle of polarized grid orientation.
- (5) Slide grooves to mount a 3" x 2" slide mounted Accessory.
- (6) Notch for angular reading at side of rotatable mount.
- (7) 3" x 2" slide mount runners on rear plate of rotator mount.
- (8) Securing screw for 3" x 2" slide mounted Accessory.

5. Spare Parts

Polarizer Rotator 3" x 2" Slide Mount and Kits

GS12500 FTIR Infrared polarizer rotator 3" x 2" slide mount.

GS12501 KRS-5 FTIR Infrared Polarizer Kit.

GS12502 Germanium FTIR Infrared Polarizer Kit.

GS12503 CaF₂ FTIR Infrared Polarizer Kit..

GS12504 BaF₂ FTIR Infrared Polarizer Kit.

GS12505 ZnSe FTIR Infrared Polarizer.

Polarizers

GS12000 KRS-5 substrate FTIR Infrared Polarizer.

GS12700 Germanium substrate FTIR Infrared Polarizer.

GS12800 CaF₂ substrate FTIR Infrared Polarizer.

GS12900 BaF₂ substrate FTIR Infrared Polarizer.

GS12950 ZnSe substrate FTIR Infrared Polarizer.

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