



# GS 57340 Series Rotator Mounts For GS57010 Series Polarizers

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## *User Manual*





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## **ROTATOR MOUNTS P/N'S GS57340, GS57350, GS57360 AND GS57370**

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## 1. Introduction

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Thank you for purchasing a Specac Product.

The GS57340 Series Rotator Mounts are designed to accommodate the Specac GS57010 Series of **Standard**, High Extinction Ratio (**HER**) or Image Quality (**IQ**) polarizers. When the GS57010 Series polarizer is placed into its appropriate rotator mount, the polarizing grid deposited on the polarizer substrate material can be rotated for selection of a particular degree angle of polarized light.

The rotator mounts are graduated in 2° angle intervals and can be estimated to 1° angle accuracy. They can be mounted directly either to an optical bench or via a support post.

There are four different sizes of GS57340 Series rotator mount with individual part numbers which correspond for fitting of a particular size of GS57010 Series polarizer for its clear aperture (C.A.) diameter. They are as follows:

P/N GS57340 Rotator mount for 25.0mm C.A. GS57010 Series polarizers.

P/N GS57350 Rotator mount for 38.0mm C.A. GS57010 Series polarizers.

P/N GS57360 Rotator mount for 50.0mm C.A. GS57010 Series polarizers.

P/N GS57370 Rotator mount for 71.0mm C.A. GS57010 Series polarizers.

The GS57340 Series rotator mounts are provided with their own protective covers, such that a GS57010 Series polarizer can be contained safely within the rotator mount when not in use.

This user manual will instruct how to use the rotator mounts and will also inform how to fit a GS57010 Series polarizer into position within the rotator mount.

## 2. Unpacking and Checklist

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A GS57340 Series rotator mount can be provided under its own part number as GS57340, GS57350, GS57360 or GS57370 in its own packaging.

A GS57340 Series rotator mount can be supplied together with its dedicated GS57010 Series polarizer (**Standard, HER or IQ** type) if both these items have been ordered as the Standard Infrared Polarizer Kit part number. If the items have been ordered as a Kit they are supplied in a plastic carry case.

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

- A GS57340 Series rotator mount of your choice in its own packaging. (If ordered as a GS57340 Series part number).
- A GS57340 Series rotator mount of your choice and a dedicated GS57010 Series polarizer in a plastic carry case. (If both items ordered as a Standard Infrared Polarizer Kit).

### Caution!



*When removing the items from their packing be especially careful with the GS57010 Series polarizer. 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 GS57010 Series polarizer in its original packing container when not being used.*

### 3. Instructions for Use

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All of the GS57010 Series polarizers compatible for fit into a GS57340 Series rotator mount are supplied with a black coloured anodized aluminium ring mount that holds the substrate material of choice and which has the polarizer grid laid onto one surface of the substrate.

**Note:** *On no account is the substrate with polarizer grid to be removed from the Anodized aluminium ring mount.*

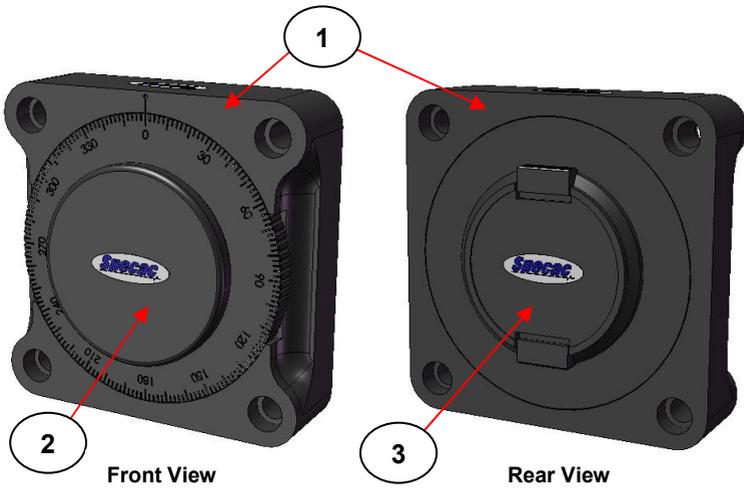
#### **Fitting a GS57010 Series Polarizer into a GS57340 Series Rotator Mount**

Please see the user instruction manual for the GS57010 Series polarizers for their explanation of use and to determine the direction of the lines of parallelism from the polarizer grid laid onto the substrate. The polarizer grid orientation needs to be known for correct fitting of the GS57010 Series polarizer into its appropriate rotator mount.

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

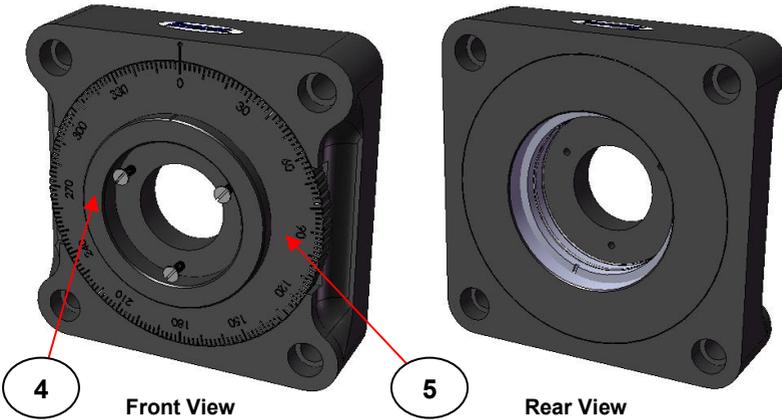
**Fig 1.** shows front and rear views of the rotator mount P/N GS57340 (1) as an example of the GS57340 Series range. This rotator mount version is suitable for fitting of the 25mm C.A. GS57010 Series polarizers. The rotator mount (1) is supplied with front (2) and rear (3) covers that protect a polarizer when installed and not in use.

In use, the front (2) and rear (3) covers are removed from the rotator mount (1). The front cover (2) is a “friction fit” over the circumference ring “boss” (4) of the graduated rotator wheel (5) and is pulled away to reveal any GS57010 Series polarizer that would be installed into the rotator mount. The rear cover (3) is removed by pinching together the two spring clips of this cover and pulling away.



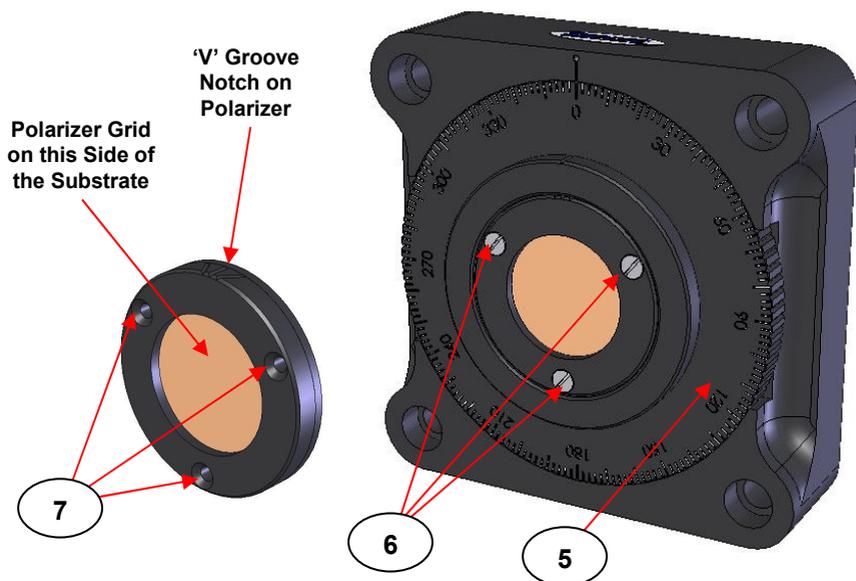
**Fig 1. Front and Rear Views of Rotator Mount P/N GS57340**

From removal of the front (2) and rear (3) covers, the rotator mount is supplied as shown for the front and rear views in Fig 2.



**Fig 2. Front and Rear Views of Rotator Mount P/N GS57340 with Protective Covers Removed (No Polarizer Fitted)**

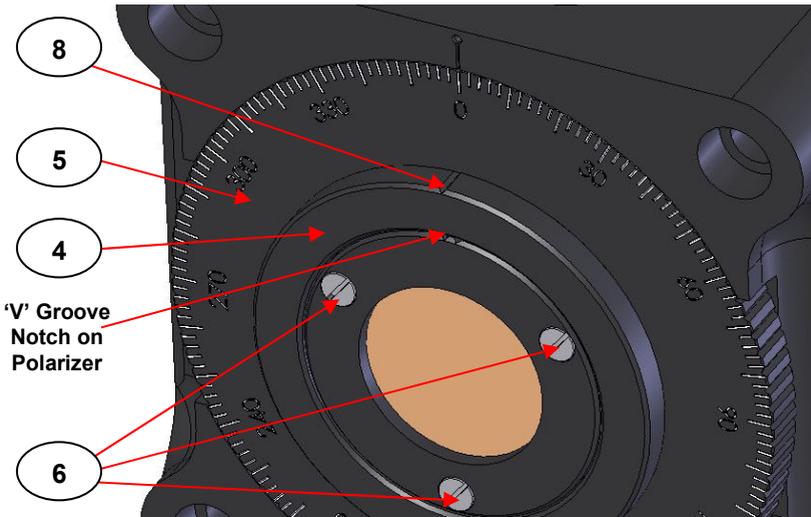
For installation of a GS57010 Series polarizer, the three fixing screws (6) supplied with the GS57340 Series rotator mount and fitted within the graduated rotator wheel (5) are used to secure through the three fixing holes (7) of the anodized aluminium ring mount of the GS57010 Series polarizer itself. **Fig 3.** shows an example of a 25mm C.A. GS57010 Series polarizer compatible for fit (and fitted) in the P/N GS57340 as the front view.



**Fig 3. 25mm C.A. GS57010 Series Polarizer Fitted Within its Compatible Rotator Mount P/N GS57340**

For installation of the GS571010 polarizer into the rotator mount (1), first remove the three fixings screws (6) completely from the graduated rotator wheel (5). On the circumference ring boss (4) there is small notch (8) that is in alignment with the 0° angle position marking on the graduated rotator wheel (5). Knowing the alignment of the polarizer grid lines from the reference 'V' groove notch on the GS57010 Series polarizer (which also determines which side of the substrate the

polarizer grid has been laid), insert the polarizer into the rotatable mount as shown in **Fig 4**. by aligning the 'V' groove notch with the 0° angle position and notch mark (**8**) on the graduated rotator wheel (**5**) and with the labeling on the polarizer ring mount and side of the substrate that carries the polarizer grid facing outwards. The three screw fixing holes of the polarizer ring mount (**7**) will align with the locating holes in the graduated rotator wheel (**5**). Secure the GS57010 Series polarizer into position by replacing and tightening the three fixing screws (**6**).

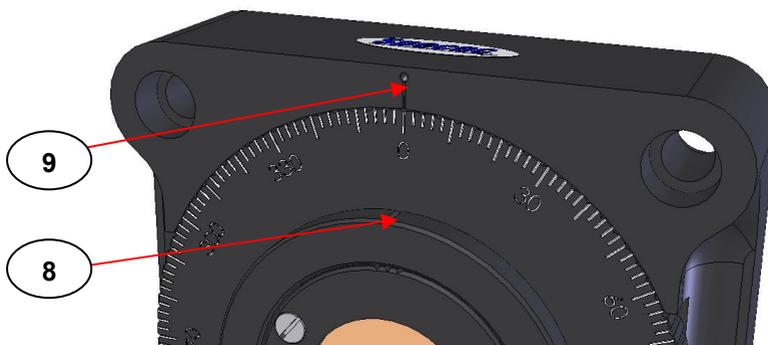


**Fig 4. Detail for Alignment of GS57010 Polarizer into Graduated Rotator Wheel at 0° Angle**

When the GS57010 polarizer is installed in this position in the graduated rotator wheel (**5**) and the 0°degrees position and notch mark (**8**) are set at a 12 O'clock position, 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. 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.

## Rotating the GS57010 Series Polarizer

The GS57010 Series polarizer can be rotated and set for any angle for the parallel lines of the polarizer grid from  $0^\circ$  through to a  $90^\circ$  angle when positioned in its compatible rotator mount (1). The degree angle that can be set is referenced against the degree angle mark (9) at the top of the GS57340 Series rotator mount (See Fig 5.).



**Fig 5. Degree Angle Reference Mark on the GS57340 Series Rotator Mount**

With the GS57010 Series polarizer being “fixed” in such a position in the graduated rotator wheel (5), when the graduated rotator wheel (5) is rotated such that the  $90^\circ$  mark is aligned with the reference mark (9), then the lines of parallelism of the polarizer grid would be running from a 9 O’clock to 3 O’clock position. The lines of parallelism can be considered to be at an angle of  $90^\circ$  (ninety degrees) compared to the  $0^\circ$  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.

## Support Post and Fixing Holes for the GS57340 Series Rotator Mounts

The GS57340 Series rotator mounts have three recess holes (10) at the base with  $\frac{1}{4}$ " – 20 UNC threading and 13mm deep. These threaded holes (10) can be used to support the rotator mount on a post or alternative stand if this may be necessary.



**Fig 6. Fixing and Support Post and Fixing Holes on the GS57340 Series Rotator Mount**

Additionally, at the four corners of the GS57340 Series rotator mounts there are counter-bored holes (11) that can be used to support the mounts if necessary by appropriate fixing screws. The diameter of the holes (11) for **any** of the GS57340 Series rotator mounts are  $\frac{1}{4}$ " – 20 UNC clear, but the distances between the centres of the holes vary for each size of rotator mount. They are:-

For P/N GS57340 – dimension to centres on each side is 75mm.

For P/N GS57350 – dimension to centres on each side is 75mm.

For P/N GS57360 – dimension to centres on each side is 100mm.

For P/N GS57370 – dimension to centres on each side is 100mm.

## General Cautions and Care of the Polarizer

The GS57010 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 GS57010 Series polarizer surface when it is fitted in its compatible GS57340 Series rotator mount (1) and the protective covers (2) and (3) are fitted, 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 a Standard Infrared Polarizer Kit was supplied, the GS57010 Series polarizer may be kept fitted into the GS57340 Series rotator mount (1) and the whole assembly of parts can be stored in the supplied plastic carry case.

## *4. Legend – Bubble Part Number Identification*

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- (1) GS57340 Series rotator mount.
- (2) Front protective cover.
- (3) Rear protective cover.
- (4) Circumference ring “boss” on graduated rotator wheel.
- (5) Graduated rotator wheel.
- (6) Fixing screws for fitting of GS57010 Series polarizer.
- (7) Fixing holes on ring mount of GS57010 Series polarizer.
- (8) Notch mark on ring boss for polarizer grid orientation.
- (9) Degree angle reference mark.
- (10) Support post location holes.
- (11) Fixing hole at corner of rotator mount body.

## *5. Spare Parts*

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There is a very wide range of polarizers available associated with the GS57010 Series and hence, part number options. The polarizers can be supplied as 25mm, 38mm, 50mm and 71mm C.A.'s in a wide range of substrate materials. Standard Infrared Polarizer Kits are also available that offer both a GS57010 Series polarizer of choice with its corresponding size GS57340 Series rotator mount. Please consult the Specac catalogue or website for an appropriate part number for a particular version of GS57010 Series polarizer or a Standard Infrared Polarizer Kit.

### **Polarizer Rotator Mounts**

- P/N GS57340 Rotator mount for 25.0mm C.A. GS57010 Series polarizers.
- P/N GS57350 Rotator mount for 38.0mm C.A. GS57010 Series polarizers.
- P/N GS57360 Rotator mount for 50.0mm C.A. GS57010 Series polarizers.
- P/N GS57370 Rotator mount for 71.0mm C.A. GS57010 Series polarizers.

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