



**Wedge Beam Splitters
for C-mount Cameras
P/N SPZ17015 and SPZ17026
User Notes**

Ophir-Spiricon, LLC
3050 North 300 W
North Logan, UT 84341

For Sales, Service, or Technical Support
Phone (435) 753-3729
Fax (435) 753-5231
E-mail: sales@us.ophiropt.com
E-mail: service@us.ophiropt.com

© Copyright 2008, Ophir-Spiricon Inc., North Logan, UT

Notice

© 2008 Ophir-Spiricon Inc. All Rights Reserved. Ophir-Spiricon Inc. reserves the right to make improvements in the product described in this User Guide at any time and without notice.

All rights to the product and any accompanying operator's manuals are reserved. While every precaution has been taken in the preparation of this product, the publisher and author assume no responsibility for errors, omissions, or any loss of data because of said errors or omissions.

Wedge Beam Splitters for C-mount Cameras

P/N SPZ17015 and SPZ17026

User Notes



45 deg beam splitter P/N SPZ17015 as provided to give 20X attenuation.



With additional 45 deg beam splitter (P/N SPZ17026 mounted to give 20x20=400 X attenuation

The wedge beam splitter attachments for C-mount cameras allow you to measure laser powers up to ~400 Watts. The beam splitter wedge is so designed as to reflect the oncoming beam from the front surface of the wedge at 90 degrees into the camera. The reflection from the rear surface is reflected at such an angle that the rear surface reflectance will miss the camera and not be seen. Approximately 90% of the beam is transmitted through each beam splitter wedge with 5% passed onto the camera (or second wedge) and another 5% diverted by the wedged surface.

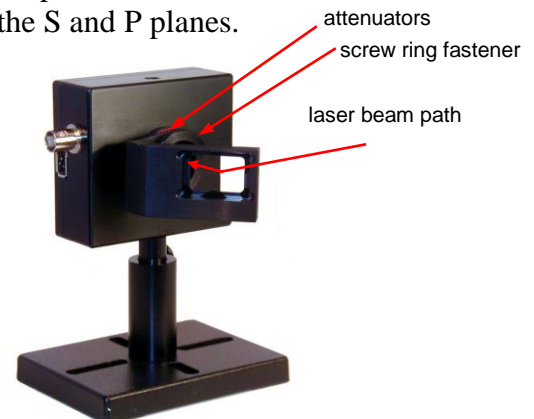
When additional attenuation is desired a second splitter wedge (P/N SPZ17026) can be mounted at right angles to the first one, see above, to get 20x20=400 times attenuation.

When the wedges are used in pairs the preferential polarization selection effect of a single wedge is cancelled out and the resulting beam image is polarization corrected to how the original beam was constructed.

If even more attenuation is needed, a third wedge (P/N SPZ17026) can be mounted at right angles to the second one. However this 3rd wedge will return polarization selectivity when the beam is significantly polarized different in the S and P planes.

Mounting one beam splitter:

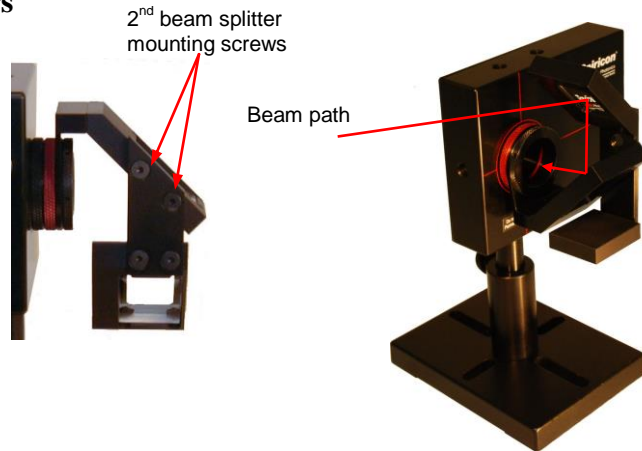
1. Install the necessary number of C-mount ND filters onto the camera.
2. Mount the beam splitter as shown here over the outermost attenuator and secure with the screw ring fastener provided. Note that the beam splitter can be oriented right, left, up or down as required.





Mounting two or more beam splitters

1. Install the necessary number of C-mount ND filters onto the camera.
2. Connect the second beam splitter (P/N SPZ17026) to the first one (P/N SPZ17015) using the two screws provided as shown. If a third beam splitter is needed, mount another P/N SPZ17026 to the first SPZ17026 at right angles.
3. Mount the double beam splitter assembly as shown above over the outermost attenuator and secure with the screw ring fastener provided. Note that the beam splitter can be oriented right, left, up or down as required.



Operation

1. Set the camera at right angles to the beam and make sure the beam is reflected at right angles into the center of the camera.
2. Adjust the shutter duration and gain for optimum image. If there are interference effects seen, slight angling of the camera-wedge setup to the beam path may eliminate this.
3. If no picture is seen, check again that the beam is centered on the ND filters. If there is still no picture or the picture is weak, even with long shutter exposure times and high gain, remove one more of the ND filters and remount the beam splitters.

CAUTION: The damage threshold for the ND filters is 50 Watts/cm². Make sure that the power density in the beam as it hits the ND filters does not exceed this amount. If the beam is converging (focusing) rather than collimated be sure to take this effect into consideration as well.

At power levels >5 watts the ND filters may start to thermal lens and deform the observed beam profile.

WARNING: You must provide a beam stop for the laser beam that passes through each beam splitter, especially the first. The beam stop(s) must be able to withstand the continuous power/energy of the input beam.