



CCTV Lens 25mm and 50mm Focal Length C-Mount Lens User Notes

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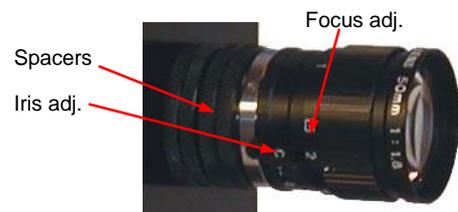
The 25mm and 50mm CCTV lenses image an object from a given plane in front of the lens onto the CCD while reducing the size. They are ordinarily used to image the laser beam as projected through a diffusing surface such as a ground glass plate, or onto a reflective surface such as a wall. The lens can image such objects at distances from about 10cm in front of the lens (20 cm for the 50mm lens) to 1 meter or more depending on the distance from the lens to the camera. The distance from lens to camera depends on the camera type and spacers placed between the lens and the camera. Along with the CCTV lens we have supplied one 8mm spacer and five 5mm spacers. If needed, you may purchase additional spacers or filters.



Configuration and Setup.

1. Look at the diagram and graphs below and select the lens to detector spacing you want in order to achieve the desired combination of object distance and beam size reduction.
2. Attach and tighten the desired spacers between the camera front and the CCTV lens. Set the iris of the lens to full open and the focus to 1m.
3. Place the diffusing or reflecting surface at the point you want to observe the beam and place the camera assembly at the desired distance. (Distance C in the diagram) If you are looking at a reflected, backscattered beam, you will have to angle the camera somewhat so as not to block the incoming beam.

Note: The graphs below were calculated with the lens set at the 1m setting. If you set it at another setting it will have the effect of changing the spacing between the lens and the camera where at the maximum setting of ∞ (infinity), the distance is increased by 2.5mm.

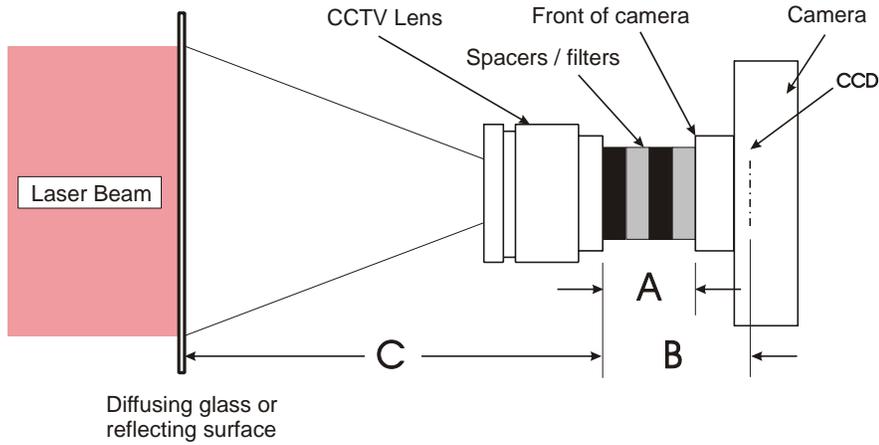


Operation – Using BeamStar software

1. If the laser is pulsed and you will be using the Ophir optical trigger (Ophir P/N 1Z17005), then place the trigger photodiode in a place where it will catch enough light from the laser pulse to trigger.
2. Run the software. On the **control panel**, open the **camera format** page and set the **optical scaling factor to beam reduced** and **times** to the number X in the graph.
Note: The number given in the graph is approximate only. If you want a more exact value, put the camera on a calibrated stage, note the centroid position of the beam in the software, move the camera a given amount (say 1mm) and note the new centroid position as given in the software. If the change in centroid position is not the same as the amount you moved the camera, adjust the optical scaling factor so that it is the same.
3. Operate the laser. If you do not see anything, reduce the attenuation of the beam. Move the camera/reducer assembly so the beam is centered on the 2D display. If the beam saturates the camera, reduce the iris opening or replace one or more of the spacers with a spacer containing a filter.
4. Adjust the camera as you would ordinarily to get the optimum image

Operation – Using LBA software

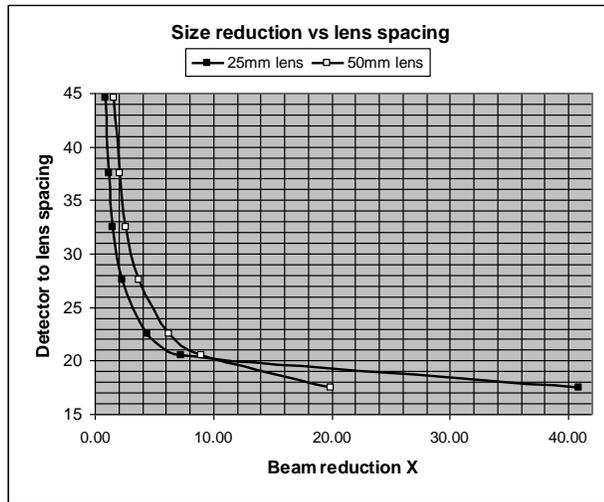
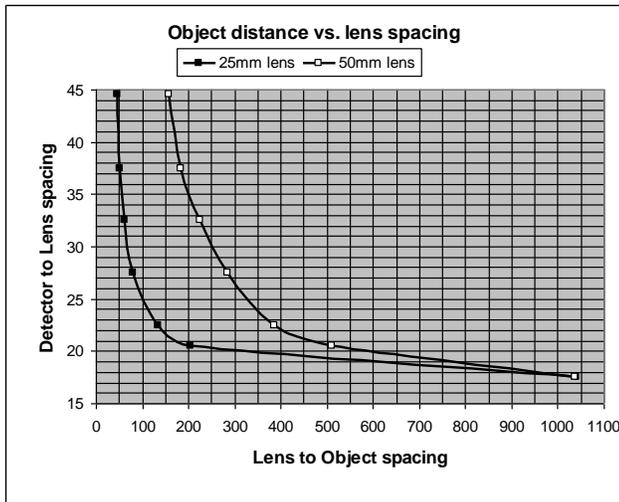
1. Run the software. Under the **Options** menu item, open the **camera...** dialog and set the **Pixel scale** to the current value multiplied by the number X in the graph.
Note: The number given in the graph is approximate only. If you want a more exact value, put the camera on a calibrated stage, note the centroid position of the beam in the software, move the camera a given amount (say 1mm) and note the new centroid position as given in the software. If the change in centroid position is not the same as the amount you moved the camera, adjust the pixel scaling factor so that it is the same.
2. Operate the laser. If you do not see anything, reduce the attenuation of the beam. Move the camera/reducer assembly so the beam is centered on the 2D display. If the beam saturates the camera, reduce the iris opening or replace one or more of the spacers with a spacer containing a filter.
3. Adjust the camera as you would ordinarily to get the optimum image



- A – Total length of spacers added to system
- B – Detector to Lens spacing. Distance 'A' plus the CCD inset for the camera type
- C – Lens to Object spacing

CCD inset for Camera Types

C mount (Camera front to CCD = 17.5mm) for nominal lens magnification, use without spacers.
 CS mount (Camera front to CCD = 12.5mm) for nominal lens magnification, use 5mm spacer.
 SP mount (Spiricon-Ophir cameras. Camera front to CCD = 4.5mm) for nominal lens magnification, use with 13mm spacers.



Ordering Information

25mm focal length CCTV lens kit	25mm focal length lens assembly with locking iris and focus adjustment. Includes 1 ea - 8mm spacer and 5 ea - 8mm spacers	SP90085
50mm focal length CCTV lens kit	Same as above except 50mm focal length lens	SP90038
4mm spacer	Screw on spacer to add 4mm spacing to optical system	SPG01698
5mm spacer	Screw on spacer to add 5mm spacing to optical system	SPG02106
8mm spacer	Screw on spacer to add 8mm spacing to optical system	SPG02067
ND1 stackable filter (red housing)	Screw on 4mm spacer with ND1 glass filter transmission of between 20% and 5% depending on spectral range	SPZ08234
ND2 stackable filter (black housing)	Screw on 4mm spacer with ND2 glass filter transmission of between 7% and 0.5% depending on spectral range.	SPZ08235
ND3 stackable filter (green housing)	Screw on 4mm spacer with ND3 glass filter transmission of between 1% and 0.05% depending on spectral range.	SPZ08253