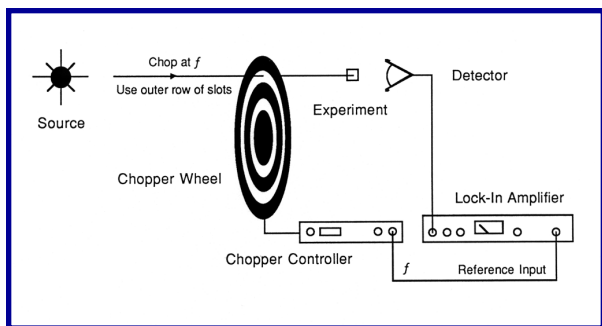


# Optical Chopper Experiments

## Application Note #11

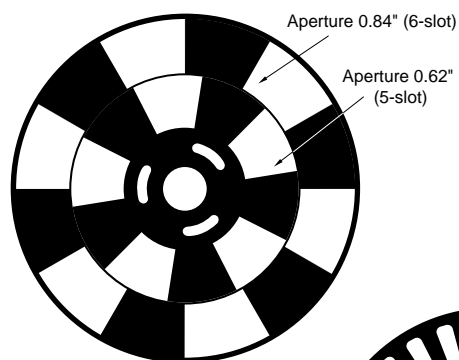
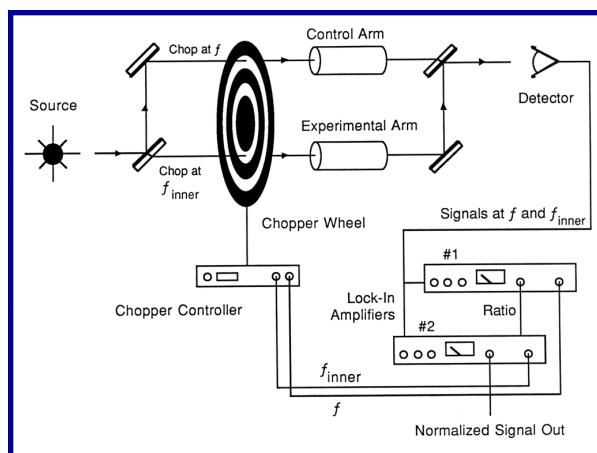
### Single Beam Experiment

In this application, a single optical beam is chopped by the outer row of slots, and the reference output from the right BNC is used to lock the lock-in amplifier to the chop frequency. The inner row of slots could also be used, in which case the left BNC would be the reference output. In either case, the REFERENCE MODE switch is in the "up" position.

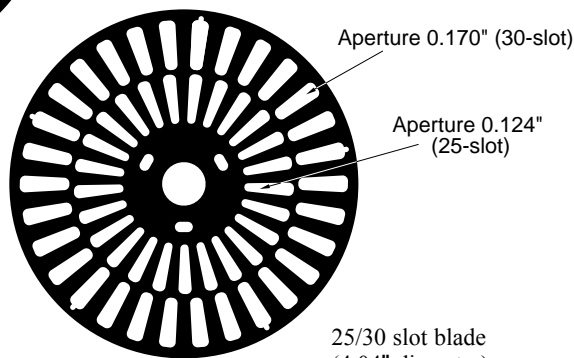


### Dual Beam Experiment

In this arrangement, the output from a single source is split and chopped at two different frequencies by the two rows of chopper slots. One beam passes through the experiment while the other is used as a reference beam. The beams are recombined and sent to the same detector. Two lock-ins are used to detect the signals at  $f_{inner}$ , corresponding to the experimental signal, and  $f_{outer}$ , corresponding to the reference beam. If the detected signal in the experimental arm is ratioed to the detected signal in the control arm, then effects due to changing source intensity and detector efficiency are removed.



5/6 slot blade  
(4.04" diameter)



25/30 slot blade  
(4.04" diameter)

