

3.2 V-650/660/670 Spectrophotometers Optical System

(1) Optical System

The optical system varies between the models of the instrument. Figures 3.3 through 3.5 show the optical systems. The V-650 measures the absorption spectrum of a sample over a wavelength range of 190 to 900 nm, the V-660 measures the absorption spectrum of a sample over a wavelength range of 187 to 900 nm and the V-670 measures the absorption spectrum of a sample over a wavelength range of 190 to 2700 nm (can be extended to 3200 nm using the optional wavelength extension accessory). The light sources used are a deuterium (D_2) lamp (187 to 350 nm) for use in the UV region and a halogen (WI) lamp (330 to 2700 nm) for use in the VIS/NIR region. The light from the light source is focused and enters the monochromator. It is dispersed by the grating in the monochromator and focused on to the exit slit. The light that passes through the exit slit is monochromated. This light is split into two beams by a sector mirror, one going to the sample to be measured and the other to the reference sample such as a solvent. The beams that have passed through the sample and reference sample are alternately incident upon the detector (that is a photomultiplier tube or a PbS photoconductive cell).

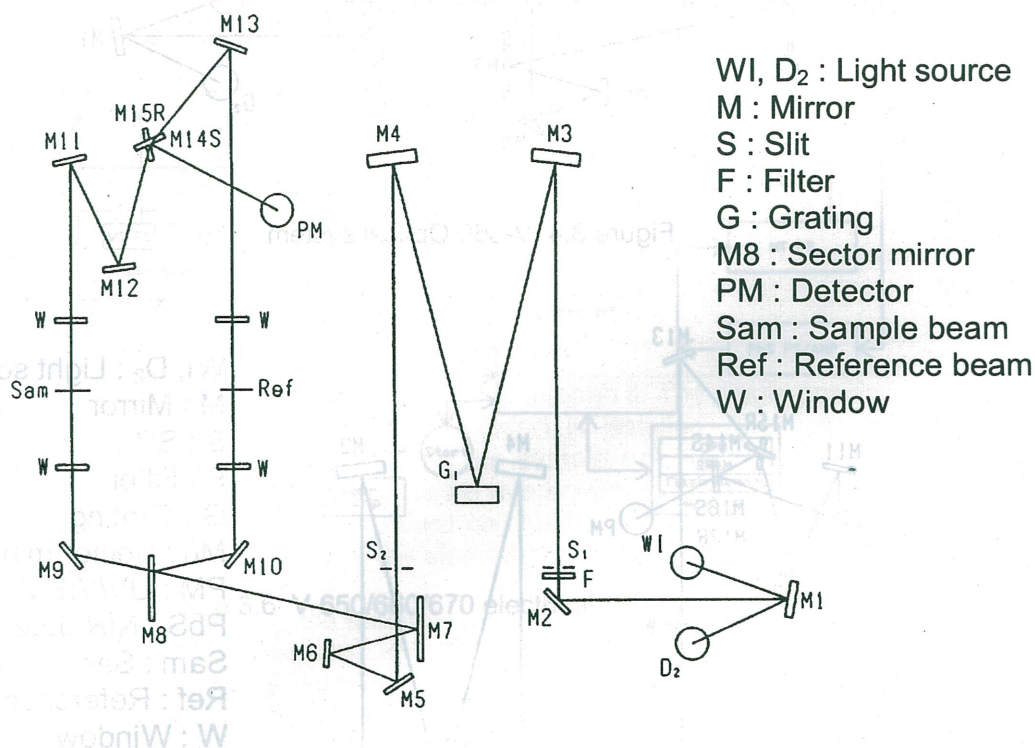


Figure 3.3 V-650 Optical system

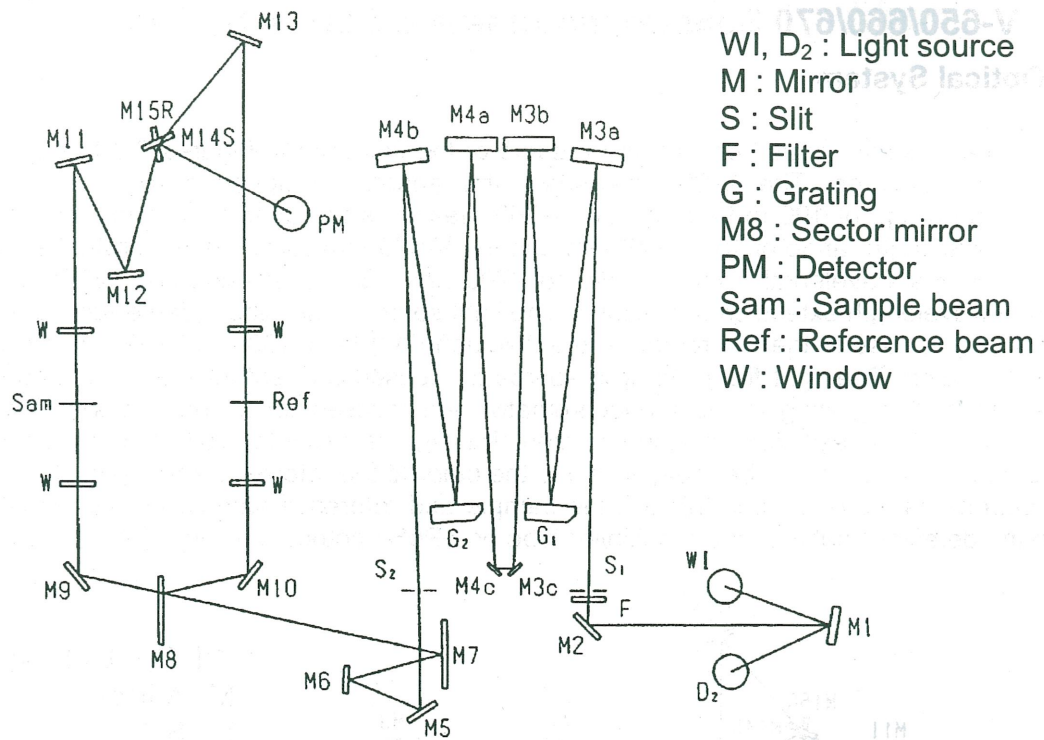


Figure 3.4 V-660 Optical system

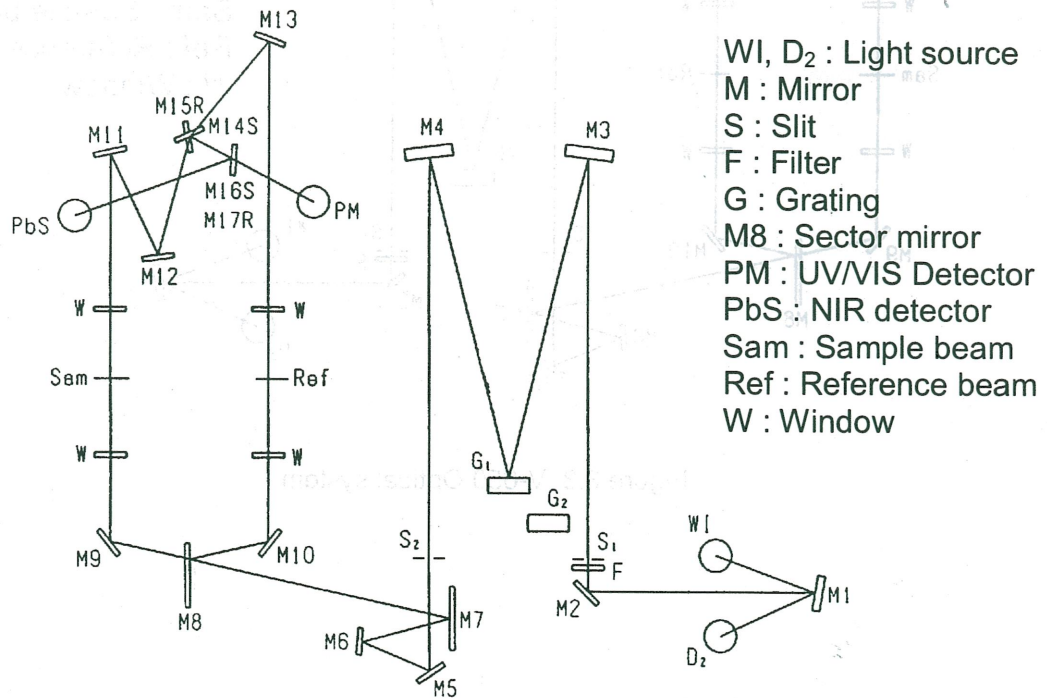


Figure 3.5 V-670 Optical system