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Model 121 Goniometric Sample Chamber

The McPherson Model 121 sample chamber facilitates measurement of reflection and transmission in the vacuum ultraviolet wavelength region. This sample chamber works with selected light source, monochromator and beam delivery to enable *absolute* spectral measurements of Percent transmission and Percent reflectance. The Model 121 is ideal for testing and measuring flat glass, AR coatings, reflectors, solar cell coatings, optical filters, lens coatings and crystalline glasses. This reflectance and transmission measurement system provides spectral measurement of anti-reflection thin film, metallic, sputter or ion beam assisted coating on polished substrates. Controlled optical geometry and excellent monochromator performance deliver accurate, repeatable reflection measurements for glass or polished transmission elements.

The sample chamber allows (goniometric) independent positioning of the sample and detector. Set the angle even while under vacuum. Set the detector angle from < 15 to 180 degrees. Adjust sample angle from 0 degrees to 60 degrees. Angular scales read out in degrees. Options exist for three- and five-position sample mounts. The three-position mount is a better choice when reflection measurements are required.

McPherson measures your samples in a collimated beam unless otherwise specified. This reduces UV bleaching, rapid aging, or unwanted fluorescence in focused ultraviolet light. It also facilitates measuring thick samples.

Specifications

Sample quantity	Three (five optional) Note: special orders up to 40 samples available
Sample size	25 mm diameter x 5 mm thick (max)
Sample angle	0 to 60 degrees
Detector angle	< 15 to 180 degrees
Angle readout	Directly in degrees
Angle settings	Manual setting sample and detector angle Note: special orders motorization
Reference	NA, absolute measurements
Vacuum range	5 * 10E-6 Torr
Detector	Scintillated photomultiplier tube for < 30 up to 300 nanometers

Regardless the sample type and desired measurement result, different system configurations are available for testing specular reflection, diffuse reflection from rough samples, and emission from plasma display or UV excited luminescent or fluorescent samples.

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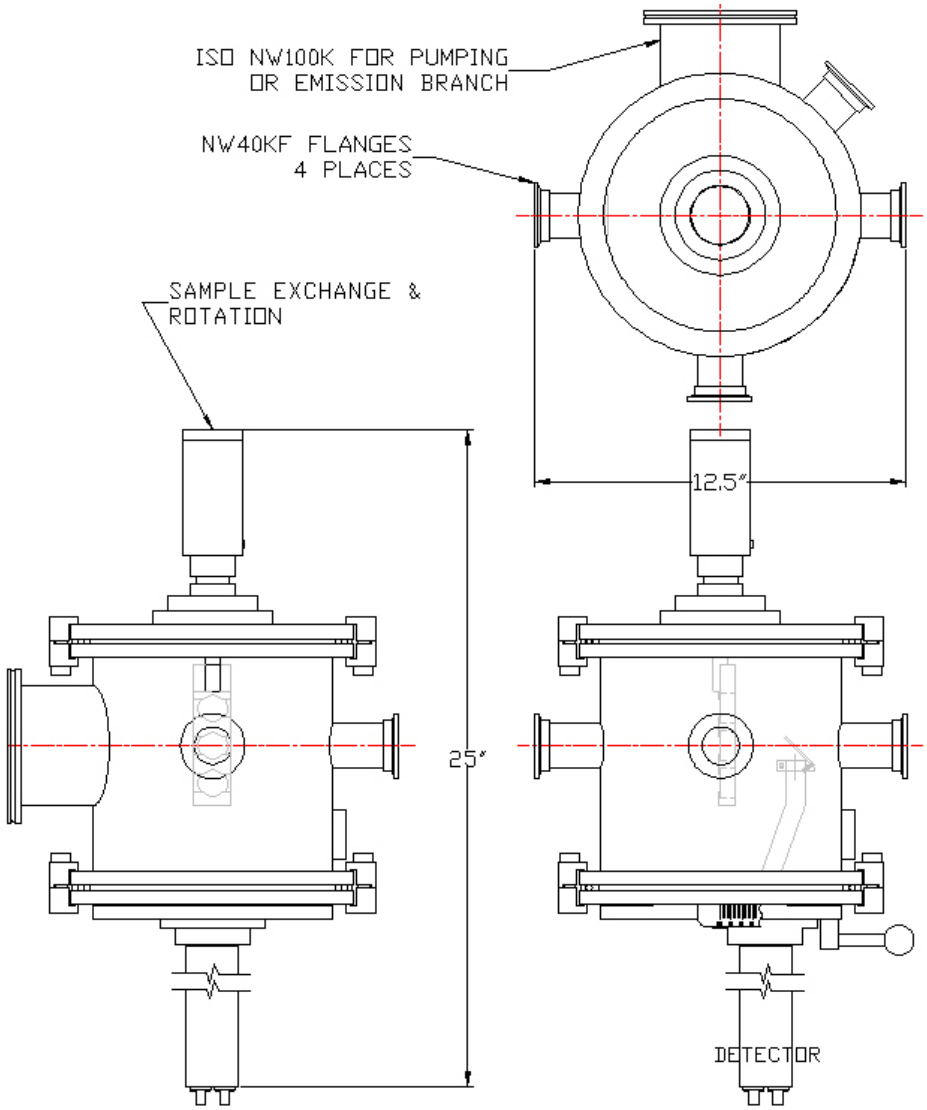
Part Numbers

100-106172, Model 121 Reflectance / Transmission sample chamber w three sample stage and indexing between 1" samples under vacuum. Stainless steel construction with accessory ports (NW100 and three NW40)

100-113400, Motorized angle setting for sample and detector stages in Model 121 sample chamber

General Layout



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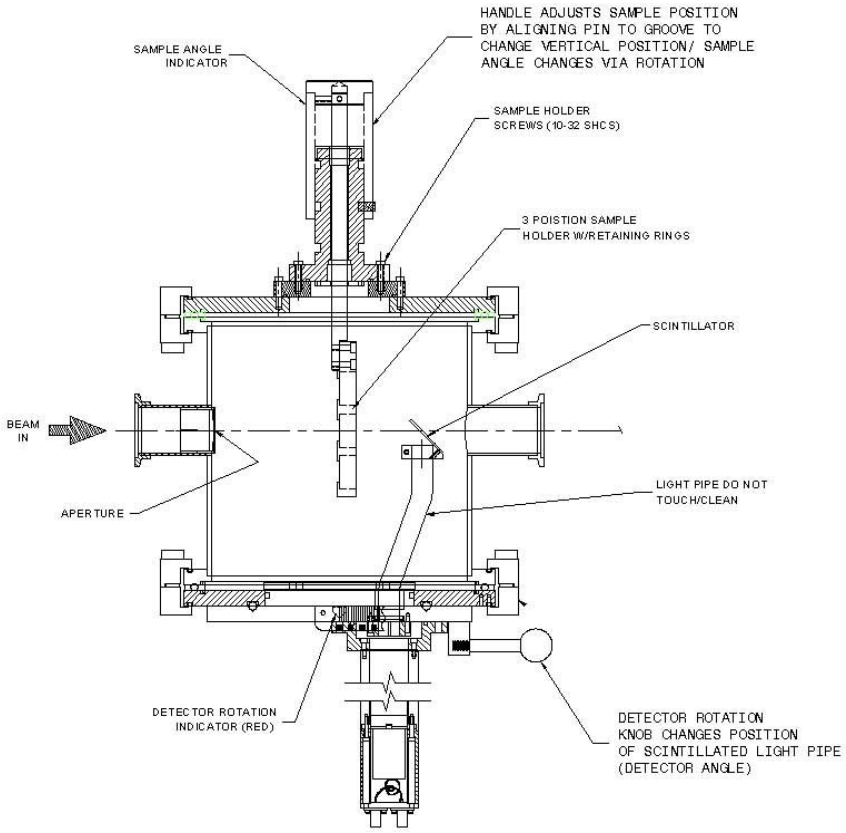
Using the Model 121

To detect ultraviolet light the Model 121 uses a scintillated photomultiplier tube connected to an internal light pipe. The scintillator converts VUV spectrum into a visible emission at 420 nanometers. The light pipe carries this signal to the (external) photomultiplier. Please refer to separate data sheets for the related components, e.g. light source, condenser, filter wheels, monochromator, collimator, and polarizer and so on.



Measuring tips

- Load samples before pumping or purging and note the position in the sample holder
- Leave one sample position empty for reference measurements (absolute measurements)
- Mount samples carefully and consistently. Establish a standard operating procedure (SOP) for handling or cleaning your samples prior to measurement. Consistency is critical to making good measurements in the VUV where contamination can make enormous differences in measured values.
- Crystalline samples should be clocked and orientation noted due to birefringence, etc. Watch sample orientation when mounting.
- Samples that are not flat, mounted flat, are undersize, oddly shaped, may alter the measurement results unless consistency is maintained.
- Keep the vacuum system clean; backfill with dry-Nitrogen when venting whenever possible. Prepare the samples or mounts before opening the sample chamber. Keep Nitrogen flowing when changing samples