

Monitor

OPTICALLY CONTROL DEPOSITION

Preliminary Specifications - Coming Spring of 2020

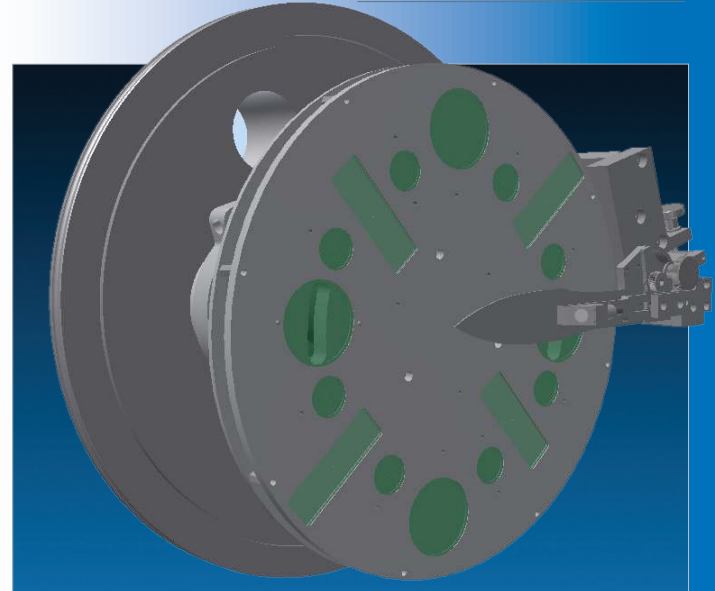
We offer an optical monitor to unlock the full automation capability of the Techne precision Ion Beam Deposition system. Using a stabilized Halogen-Deuterium light source to take advantage of a broad spectrum, substrates are monitored directly during deposition. Software uses a predictive algorithm thin film algorithm and FFT spectral analysis for layer termination - using the best thickness measurement available. The result is layer control to within $\pm 0.95\text{nm}$ optical thickness and a stopping time to within 0.1 seconds. More importantly, the substrates receive the desired optical coating with correct cut points and performance.

Create your optical design using industry standard software and import the design files into the optical monitor. Use the simulation and analysis mode prior to deposition to ensure the desired result.

The optical monitor has full data logging capability and will capture real time information including spectra for each layer, end thickness, stop times and status. There are features to assess and manage the health of the run where the current spectrum and upcoming target are always displayed. Also displayed are current layer and estimated time remaining.

TYPES OF COATINGS

- Dichroic beam splitters
- Thin film plate polarizers
- Long and short pass filters
- V coat and W coat ARs
- Laser mirrors



300mm SUBSTRATE ▲

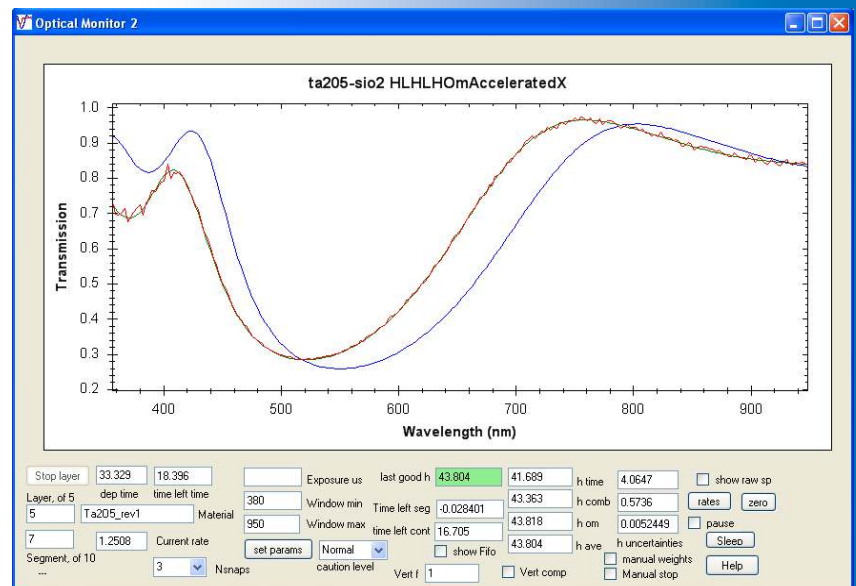
OPTICAL MONITOR ▲

SPECIFICATIONS & OPTIONS

| | |
|---------------------|--|
| LIGHT SOURCE | Halogen / Deuterium |
| | Wavelength range: 240 to 1070 nm |
| | Spectral resolution: 0.06 to 1.5 nm (25 micron slit is standard) |
| | Wavelength accuracy: 0.05 nm |
| | Gratings: 1 (in the spectrometer) |
| DETECTOR | CCD detector array extended for extra sensitivity |
| | Normal full scale exposure time: 4 ms |
| HARDWARE | In situ caliper style with 600 micron fiber optic (VIS / NIR) |
| | Transmission mode |
| | Through part monitoring or witness piece |
| | Protective covers for collimator and detector |
| SOFTWARE | Able to read and import designs from standard thin film design files. |
| | Simulation mode |
| | Corrections possible with human intervention |
| | Data logging in ASCII format with data log review program |
| CONTROL | Pause and alarm integration with system controller |
| | Layer control to within: ± 0.95 nm optical thickness (or better) |
| | Maximum layer thickness: 10 μm (UV) to 40 μm (NIR) |

FEATURES

- Displays current spectrum
- Estimated time remaining for layer
- Simulation mode
- Data logging (1 per second)



▲ REAL TIME SPECTRUM