Dynavac

30 Years of Innovation

THIN FILM DEPOSITION

Spectrum-Pro
Optical Monitoring System

Dynavac's Spectrum-Pro Optical Monitoring System provides process flexibility, precision, and reliability run after run.

The Spectrum-Pro combines the strengths of a precision optical photometer and quartz crystal monitor to provide a new level of precision in end-point detection of optical coatings. It enables a wide range of monitoring strategies including reflectance, transmittance, and direct monitoring. Its newly designed optical components maximize light throughput, minimizes noise, and simplifies alignment. Optics can be customized for virtually any wavelength or chamber configuration. The system uses commercially available components for ease of maintenance and is compatible with a wide variety of crystal monitoring devices.

When integrated into Dynavac's control system architecture, the Spectrum-Pro software package provides a single user interface for complete process and system control. It operates on a LabVIEW™-based HMI and easily supports remote access. Recipes can be downloaded directly from all major coating design software packages and can be customized in Excel or CSV format and stored in a database.

Advanced optical endpoint detection permits full, fractional and absolute layer termination. High speed, multiple order curve fitting and other methods ensure precise layer termination and are manually or automatically chosen layer by layer based on material, wavelength, rate, thickness and signal level.

The flawless performance you expect

From the most respected name in precision optical coating systems: Dynavac

System Configurations

	Standard Features	Available Options
Optics	• Fiber coupled, optical grade mounts provide stability and enable high precision measurements	• Variety of optic materials available for UV and IR wavelength ranges
Range	• Beam focal length: Infinity to 30cm from baseplate	
Light Source	• Quartz-halogen tungsten bulb and software-controlled regulated DC power supply	• Laser diode, LED sources
Chopper	• Phase locked-loop chopper adjustable from 25-2000Hz • Internal or external reference • Software controlled	
Monitoring Mode	• Reflectance, Transmittance; Direct or Indirect (non-witness or witness); intermittent, continuous	• Direct planet monitor for the intermittent monitoring of multiple planets
Witness Holder	• Reflectance mode – Chip changer with up to 100-chip capacity • Transmission mode – Single witness static holder	• Transmission mode – Rotating witness holder or direct substrate monitoring
Receiver	• Automatic filter wheel • Kinematic optic mounts with adjustments for tip/tilt, focus and position	
Monochrometer	• Newport motor-driven, software controlled 1/8-meter monochrometer with selectable gratings and adjustable micrometer slits • Software controlled	• ¼ or ½-meter monochrometer • Motorized slits • Motorized exit port for multiple detector systems • Three-grating turret • Other gratings available
Detectors	• Multiple detector support • Silicon (380-1000nm) with adjustable gain amplifier • InGaAs (900-1750nm) with integrated selectable gain amplifier	• Combination Si/InGaAs • Photomultiplier (320-950nm) with integrated HV power supply controlled by software
Lock-in Amplifier	• Stanford Research SR510	• National Instruments DAQ System with software phase locking for direct planet monitoring system
Deposition Control	• Inficon IC5, IC6, XTC-2, and XTC-3 compatible • Supports multiple crystal sensors	• Other controllers available
Chart Recorder	• Software chart display and signal data log	• Linear chart recorder for paper recording of signal output
Software	• Recipes are compatible with standard design packages including FilmStar and OptiLayer • Excel and text file recipes are customized for each process enabling complete automation • Process can have non-layer and layer steps, allowing automation of any PLC controlled device • Noise threshold can stop processes with excessive crystal or optical noise • Optical detection providing full, fractional and absolute layer termination • High speed, multiple order curve fitting and other methods ensure precise layer termination • Data log stores process events along with real-time data	
Future offerings	• Direct planet monitoring - Now in test mode! • Broadband monitoring	

Dynavac®

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