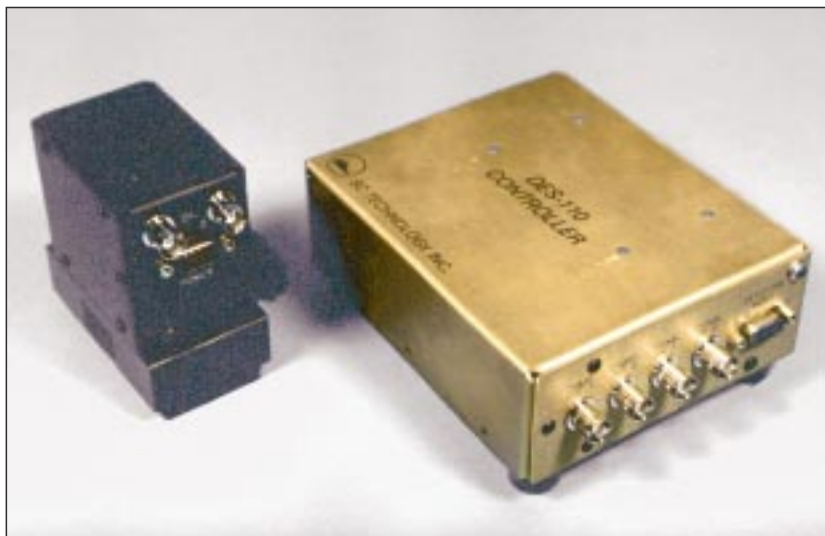




Optical Solutions from

SC TECHNOLOGY

Model 110 Dual Channel Detector



Model 110 Detector Head and Controller

The Model 110 Optical Endpoint System consists of two modules -a detector head and a remotely mounted variable gain amplifier/controller. The Model 110 Detector Head contains a dual channel photodiode detector. Two large area photodiodes are coupled to highly sensitive JFET amplifiers with jumper selectable gain. The photodiodes are kept at a constant temperature with a closed loop controlled Thermo-Electric Cooling device. Separate 10nm bandpass filters, one for each photodiode detector, are mounted in an easily removed tray. Light collimating lenses precede the filters for enhanced sensitivity and broadband light rejection. A built in preamplifier ensures a strong noise-free signal will reach the remote variable gain amplifier.

The Variable Gain Amplifier/Controller contains two separate 0-40dB variable gain amplifiers -one for each photodiode detector. Independent control of these amplifiers is facilitated through two 0-10vdc analog inputs. In addition to the two 0-10vdc signal outputs, two chart recorder outputs are available on BNC connectors, one for each photodiode detector. The Amplifier/Controller contains the driver and control circuitry for the Thermo-Electric Cooler. The entire system is powered by +24 and +5vdc.

ENDPOINT DETECTION

Endpoint Detection

In order to ensure run-to-run repeatability in semiconductor processing, today's fine-line geometries demand tighter control of the process parameters directly associated with the plasma reaction itself. Endpoint is one of those parameters and is defined as the point in time when an overlying layer of materials is completely removed, thus exposing the underlying layer. In order to prevent dimensional loss and undercutting of subsequent layers, it is critical that the process is terminated at the endpoint interface, with some degree of control, rather than relying on fixed times or a visible change in the color of the plasma.

Detector Head

Detectors:

Large area (33mm²) UV enhanced silicon photodiodes.

Filters:

12mm dia., 10nm FWHM interference type (consult factory for wavelengths)

Lenses:

12mm dia., 19mm fl, fused silica plano-convex.

Temperature Stabilization:

12.5w peltier type TEC with thermistor in closed loop control.

Mechanical:

2" x 3.5" x 3.5" approx. (WxDxH)

Amplifier/Controller

Gain Control:

1-40dB amplifier gain.

Input Range:

0-10vdc for each channel

Output Range:

0-10vdc amplitude out for each channel
0-10vdc chart recorder out for ea. channel

Chart Recorder Outputs:

BNC, 0-10vdc, indicative of light intensity.

Fuses:

500ma (24vdc), 3A (5vdc).

Power:

+24vdc @ 300ma +5vdc @ 2A

Mechanical:

6" x 5" x 2" approx. (WxDxH)

