Advanced Energy

MXE HIGH-SPEED PYROMETER

HIGH-SPEED MEASUREMENT FOR PRECISE CONTROL IN MOCVD AND ADVANCED SEMICONDUCTOR PROCESSES

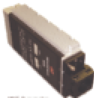
The Sekidenko MXE pyrometer combines speed and precision, enabling accurate, repeatable measurement and control of demanding MOCVD and semiconductor applications. Its high-speed performance is ideal for processes with high susceptor rotation speeds, such as HB-LED growth. For easy integration and flexible control options, the MXE unit is remarkably compact and supports a variety of I/O protocols.

Features

- Wafer pocket and carrier temperature measurement
- In-situ, non-contact temperature and reflectance measurement
- High-speed measurement ideal for high rotation speed reactors
- 950 nm measurement wavelength (temperature + reflectance)
- Available 405 nm and 635 nm reflectance versions
- EtherCAT®, USB, RS-232, and analog output options

Benefits

- Increased productivity, yield, and throughput
- Enhanced wafer-to-wafer and run-to-run uniformity
- Decreased development time
- Improved temperature measurement accuracy and repeatability
- Comprehensive process insight
- Easy integration and flexible control



MXE Pyrometer

INCREASED UNIFORMITY AND YIELD

Temperature control during the MQW growth stage of HB-LEDs is critical to wavelength yield, including both within-run and run-to-run variation. Reactors with high susceptor rotation speed require high-speed measurement to measure every wafer, as well as adequate signal-noise performance to cover typical MOCVD process temperatures. Specifically designed for these demands, the MXE pyrometer enables tighter process control, resulting in increased yields and faster process development cycles.

HIGH-SPEED MEASUREMENT

With a 10 kHz read rate, the Sekidenko MXE pyrometer is ideal for reactors with high rotation speeds, especially above 600 RPM. This high data rate allows discrimination between susceptor and pocket measurements over the HB-LED growth temperature range, even at the outer radial distances.

ACCURATE, REPEATABLE PERFORMANCE

Paired radiance and reflectance measurements allow extraction of compensated temperature for high-accuracy process monitoring and control. The availability of multiple data points per wafer ensures statistically significant temperature determination for each wafer. Moreover, built-in compensation algorithms allow stable operation over the full ambient temperature range, for repeatable and consistent measurement.

COMPREHENSIVE PROCESS INSIGHT

Reflectance and radiance measurements, both at 950 nm, can be used together to determine wafer pocket temperatures with a transparent substrate. For opaque substrates, emissivity-compensated temperature measurements are directly available. Configurations optimized for reflectance measurements at 405 nm and 635 nm are also available.