

SmartEngine™ UV-VNIR Spectrometer

Our workhorse UV–VIS–NIR spectrometer platform for laboratory, industrial, and OEM applications

The SmartEngine™ (SE) Series spectrometers deliver high-performance spectral analysis in a compact Czerny–Turner optical platform. Featuring CCD and CMOS sensor options with USB-powered operation and programmable I/O, the SmartEngine provides reliable UV–VIS–NIR measurements for laboratory, industrial, and OEM applications.



APPLICATIONS

- UV–VIS–NIR spectroscopy and optical characterization
- Semiconductor, display, and LED testing
- Thin-film, coating, and color measurement
- Biomedical and environmental sensing
- Process and quality control monitoring
- OEM and embedded system integration

KEY PERFORMANCE

- Wavelength Range:** 180 – 1100 nm
- Optical Resolution:** 0.2 - 10.5 nm
- Signal-to-Noise Ratio:** up to 500
- Dynamic Range:** up to 6000
- Integration Time:** 0.1ms – 24s
- Stray Light:** <0.2 – 0.45 %
- Thermal Stability:** <0.04 nm / °C
- Interface:** USB 2.0 + programmable I/O

SmartEngine™ Specifications

	SE1010/ SE2010	SE1020 / SE2020	SE1030 / SE2030	SE1040 / SE2040	SE1050 / SE2050	SE1070 / SE2070	SE1080 / SE2080	SE1090/ SE2090/ SE5090/ SE6090/ SE5190/ SE6190	SE1120 / SE2120
Wavelength Range	From 180 nm – 1100 nm; various range choices								
Sensor Type	Front illuminated CCD	UV enhanced front illuminated CCD	Fast exposure CMOS	Front illuminated CCD	NIR enhanced back illuminated CCD	High pixel-resolution CCD	Fast exposure CMOS	Fast exposure back illuminated CCD	Fast exposure CMOS
Pixels	3000	2048			2048	3648	4096	2048	1024
SNR	200	250	350	200	500	350		500	350
Dynamic Range	2200	1700	4300 (2.5MHz) 3000 (10MHz)	2200	4600	2200	3200	6000	4300
Stray Light	0.2%				0.45%	0.2%		0.45%	0.2%
Thermal Stability	<0.04 nm / °C								
Dark Noise (avg)	30	38	15 (2.5MHz) 21 (10MHz)	30	14	30	21	11	15
A/D Converter	16 - bits								
Integration Time	0.1 ms - 65 sec, depending on the selected type of image sensor								
Operating Temperature	0°C to +50°C								
Grating	15 choices, from UV to NIR								
Dimensions / Weight	Type I: 110 (L) × 86 (W) × 32.4 (H) mm Type II: 110 (L) × 86 (W) × 35.4 (H) mm Double-layer: 110 (L) × 86 (W) × 53.9 (H) mm (available for select models) 0.4kg								