

# 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
<b>Wavelength Range</b>	From 180 nm – 1100 nm; various range choices								
<b>Sensor Type</b>	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
<b>Pixels</b>	3000	2048			2048	3648	4096	2048	1024
<b>SNR</b>	200	250	350	200	500	350		500	350
<b>Dynamic Range</b>	2200	1700	4300 (2.5MHz) 3000 (10MHz)	2200	4600	2200	3200	6000	4300
<b>Stray Light</b>	0.2%				0.45%	0.2%		0.45%	0.2%
<b>Thermal Stability</b>	<0.04 nm / °C								
<b>Dark Noise (avg)</b>	30	38	15 (2.5MHz) 21 (10MHz)	30	14	30	21	11	15
<b>A/D Converter</b>	16 - bits								
<b>Integration Time</b>	0.1 ms - 65 sec, depending on the selected type of image sensor								
<b>Operating Temperature</b>	0°C to +50°C								
<b>Grating</b>	15 choices, from UV to NIR								
<b>Dimensions / Weight</b>	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								