

Field Spectroradiometers | SS-110 and SS-120

Easy-to-use, cost-effective, rugged measurement with a datalogger or USB interface.

Wavelength Range Options

Two wavelength options are available: 340 to 820 nm (SS-110) and 635 to 1100 nm (SS-120).

Field of View Options

Three field of view (FOV) options are available 180° (hemispherical FOV for measurement of incoming radiation, included), 150° (wide FOV for measurement of reflected radiation, AS-010 accessory), and 25° (narrow FOV for measurement of reflected radiation, AS-011 accessory).

Complete Package

Package includes spectroradiometer and cosine-corrected detector mounted in the housing, 180° FOV head, AL-200 bubble-level, pigtail lead cable for datalogger interface, USB cable for computer interface, and USB drive with required drivers and software (windows compatible, XP and later; Mac compatible 10.9 and later).

Unattended Field Measurements

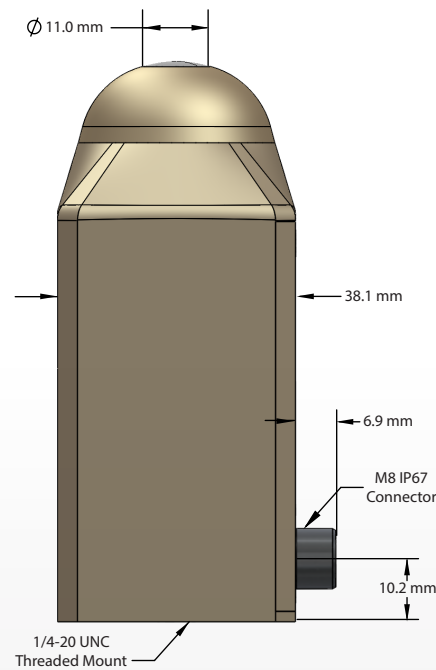
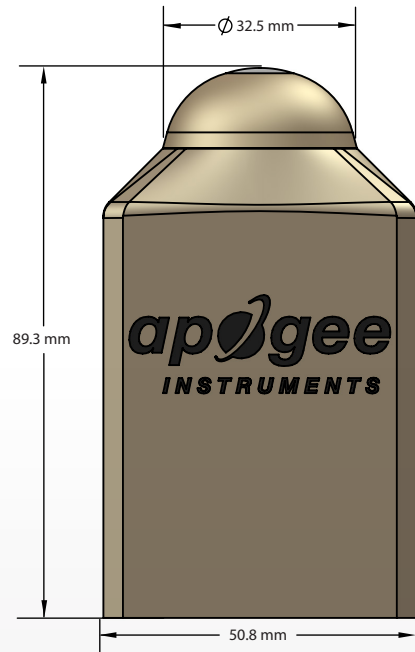
Spectroradiometer is small and lightweight with all measurement components contained in the rugged, weatherproof housing. Power consumption is low (1 W at 12 V DC), temperature compensation is automatic, and unit can be interfaced to a datalogger (via ModBus communication protocol), allowing unattended measurement in the field.

Typical Applications

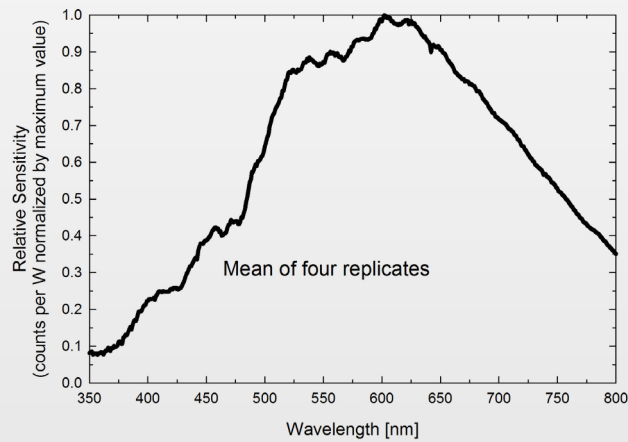
Measurement of spectral output (energy flux density, photon flux density, or illuminance) of different radiation sources (often for plant or human lighting), and reflectance and transmittance measurements of natural and synthetic surfaces and materials (often plant leaves and canopies).



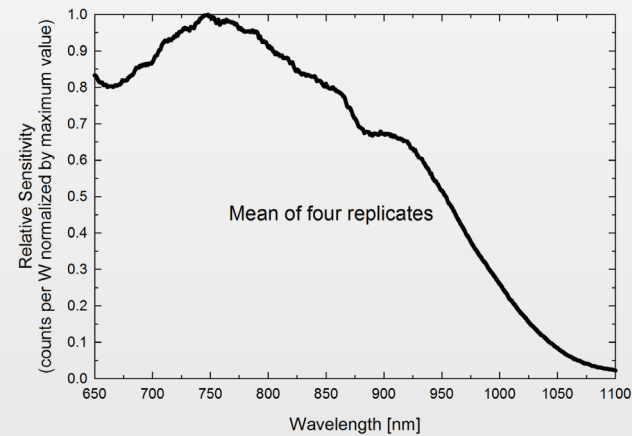
Dimensions



SS-110 Sensitivity

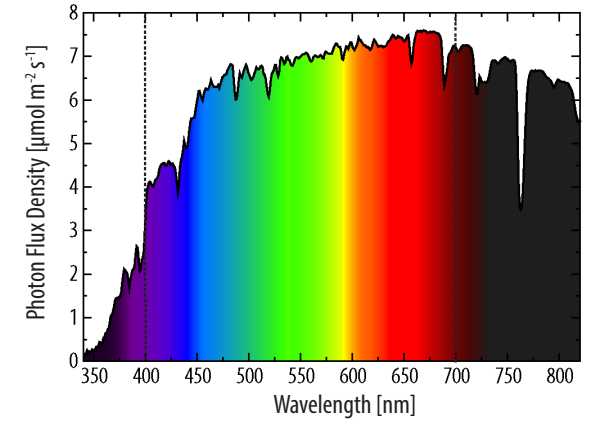


SS-120 Sensitivity



Sensitivity was determined by collecting spectra under a quartz halogen lamp with an NIST traceable calibration and calculating the ratio of counts measured with the spectrometer to energy flux density from the lamp. Maximum sensitivity of the SS-110 is near 600 nm and maximum sensitivity of the SS-120 is near 750 nm. Sensitivity of the SS-110 is at least 10 % of the maximum value at all wavelengths greater than 380 nm and sensitivity of the SS-120 is at least 10 % of the maximum value at all wavelengths less than 1030 nm.

Solar Spectrum-Logan, UT



	SS-110	SS-120
Wavelength Range	340 to 820 nm	635 to 1100 nm
Wavelength Measurement Internal	1.0 nm	
Wavelength Resolution	3.0 nm	
Wavelength Accuracy	± 0.5 nm	
Wavelength Repeatability	± 0.2 nm	
Analog to Digital Resolution	14 bit	
Signal to Noise Ratio	1500:1 (at maximum signal)	
Stray Light	≤ 0.25 % at 590 nm	≤ 0.25 % at 850 nm
Dark Noise	≤ 3 counts	
Integration Time Range	10 ms to 10 s	
Measurement Sensitivity	Greater than 10 % of max sensitivity for wavelengths greater than 380 nm	Greater than 10 % of max sensitivity for wavelengths less than 1030 nm
Measurement Repeatability	Less than 1.0 % (wavelengths greater than 400 nm)	Less than 1.0 % (wavelengths less than 1020 nm)
Directional (Cosine) Response	± 5 % at 75° zenith angle	
Fields of View	180° (upward-facing); 25° or 150° (downward-facing)	
Temperature Response	-0.1 ± 0.1 % per C	
Irradiance Calibration Uncertainty	± 5 %	
Current Draw	90 mA while measuring, 12 mA not measuring (datalogger); 190 mA (USB)	
Power Requirement	1 Watt (USB and datalogger)	
Communication Protocol	Modbus RTU over RS-232 (pigtail and USB)	
Interface Cable	5 m santoprene jacket with pigtails (for datalogger), 5 m jacket with USB (for computer)	
Software	Apogee Spectrovision (windows compatible, XP and later; Mac compatible 10.9 and later)	
Operating Environment	-20 to 70 C, 0 to 100% relative humidity	
Thread Size (for Mounting)	¼"-20	
Dimensions	89.3 mm height, 50.8 mm width, 38.1 mm depth	
Mass	300 g	
Warranty	4 years against defects in materials and workmanship	