

Pyrgeometers | SL-500 and SL-600 Series

Accurate and stable incoming and outgoing longwave radiation measurement

Accurate, Stable Measurements

Calibration in controlled laboratory conditions is traceable to the World Infrared Standard Group in Davos, Switzerland. Long-term non-stability determined from multiple replicate pyrgeometers in accelerated aging tests and field conditions is less than 2 % per year.

Unique Design

Designed to optimize performance and price. The filter, blackbody thermopile detector, and thermistor (to measure detector temperature) are all contained in a compact housing that provides improved thermal coupling.

Rugged, Self-cleaning Head

Patented domed shaped sensor head for the upward-looking model facilitates runoff of dew and rain to keep sensor clean and minimize errors caused by dust blocking the radiation path. Sensors are housed in a rugged anodized aluminum body and electronics are fully potted.

On-board Heater

A 0.2 W heater keeps water (liquid and frozen) off the sensor and minimizes errors caused by dew, frost rain, or snow blocking the radiation path.

Mounting

A thermally-insulated base is included to be mounted between the sensor and leveling plate. The AM-110 mounting bracket facilitates mounting the AL-100 leveling plate to a mast or pipe. The bubble-level in the plate makes leveling simple and accurate.

Typical Applications

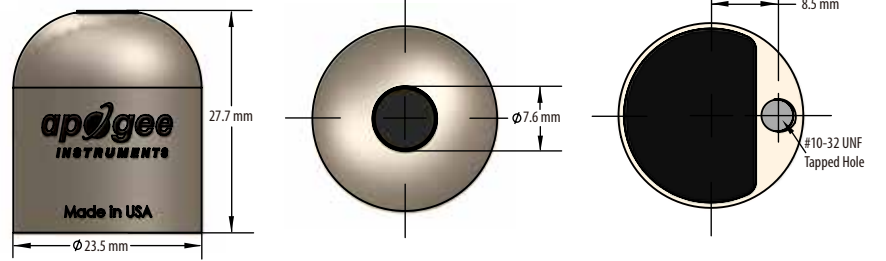
Applications include longwave radiation measurement in agricultural, ecological, and hydrological weather networks and renewable energy applications.



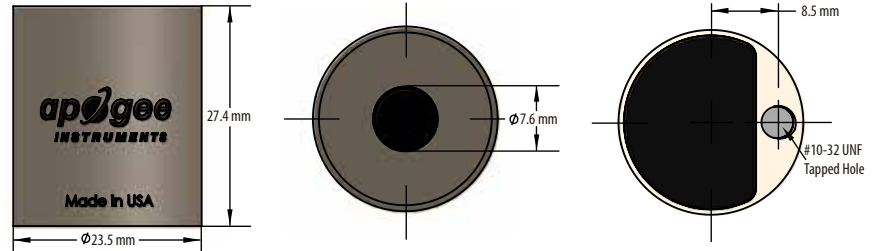


Dimensions

SL-510 Upward-looking



SL-610 Downward-looking



SL-510

SL-610

Sensitivity	0.12 mV per W m ⁻² (variable from sensor to sensor, typical value listed)	
Calibration Factor (Reciprocal of Sensitivity)	8.5 m ² per mV (variable from sensor to sensor, typical value listed)	
Calibration Uncertainty	± 5 %	
Measurement Range	-200 to 200 W m ⁻² (net longwave irradiance)	
Measurement Repeatability	Less than 1 %	
Long-term Drift	Less than 2 % change in sensitivity per year	
Non-linearity	Less than 1 %	
Response Time	Less than 0.5 seconds	
Field of View	150°	
Spectral Range	5 to 30 μm	
Temperature Response	Less than 5 % from -15 to 45 C	
Window Heating Offset	Less than 10 W m ⁻²	
Zero Offset B	Less than 5 W m ⁻²	
Tilt Error	Less than 0.5 %	
Uncertainty in Daily Total	± 5 %	
Temperature Sensor	30 kΩ thermistor, ± 1 C tolerance at 25 C	
Output from Thermistor	0 to 2500 mV (typical, other voltages can be used)	
Input Voltages Requirement for Thermistor	2500 mV excitation (typical, other voltages can be used)	
Heater	780 Ω, 15.4 mA current drain and 185 mW power requirement at 12 V DC	
Dimensions	27.5 mm height, 23.5 mm diameter	
Mass	90 g	100 g
Cable	5m of six conductor, shielded, twisted-pair wire; additional cable available in multiples of 5 m; santoprene rubber jacket (high water resistance, high UV stability, flexibility in cold conditions); pigtail lead wires	
Warranty	4 years against defects in materials and workmanship	