



SN-500

DESCRIPTION

Apogee Instruments' new four-component net radiometer provides individual measurement of net radiation components. The sensor features an SDI-12 output, eliminating the need for multiple analog channels to measure the individual components of net radiation. The net radiometer comes as a complete package that includes net radiometer, mounting rod, pigtail lead cable for datalogger interface, and carrying case.

Onboard A/D Conversion and SDI-12 Output

Apogee net radiometers feature onboard A/D conversion and SDI-12 output to eliminate the requirement of multiple analog datalogger channels.

Four-component Net Radiometer

An upward-looking and downward-looking pyranometer, and an upward-looking and downward-looking pyrgeometer provide separate measurements of the four components of net radiation.



Features:

High Accuracy

Measure all four components of net radiation with a digital output that saves datalogger channels. Comparable accuracy to industry-leading competition in long-term field testing.

Digital Output

An on-board 24-bit A to D converter makes measurements and provides a digital SDI-12 output. This eliminates the need for multiple analog datalogger channels to measure each of the four components of net radiation.

Compact and Lightweight

The small lightweight design enables easy mounting to a cross arm using the AM-500 mounting bracket that facilitates precision leveling.

Heated Sensors

Each sensor includes a 0.2 W heater to minimize errors from dew, frost, rain, and snow that can block the radiation path.

Typical Applications

Net radiation is a key variable in the surface energy balance and influences turbulent fluxes, including evapotranspiration. Applications include measurements on flux towers and weather stations.

Individually Heated Radiometers

Each radiometer includes an individual heater to increase accuracy by minimizing the influence of dew/frost on the filter.

Compact and Light Weight

Designed to be light weight and small in size to facilitate easy mounting.

Radiation Fluxes

Net radiation is the sum of the four components shown to the left (incoming shortwave, outgoing shortwave, incoming longwave, outgoing longwave). Incoming shortwave incident on the surface is either reflected or absorbed by the surface material, and longwave radiation is emitted from the surface and emitted from the molecules of air in the atmosphere. Typical clear sky summer fluxes over grass and clear sky winter fluxes over snow are shown. A typical summer flux at solar noon would be $+650 \text{ W m}^{-2}$; in winter it would be 0 W m^{-2}

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Input Voltage Range	5 to 16 V DC (heaters are optimized to run at 12 V DC)
Current Draw (12 V DC Supply Voltage)	Heaters on, communication enabled: 63 mA; Heaters off, communication enabled: 1.5 mA; Heaters off, communication disabled: 0.6 mA
Response Time (using SDI-12 Protocol)	1 s (SDI-12 data transfer rate; detector response times are 0.5 sec)
Heaters (sensors individually heated)	62 mA current draw and 740 mW power requirement at 12 V DC
Operating Environment	-50 to 80 C; 0 to 100 % relative humidity
Dimensions	116 mm length, 45 mm width, 66 mm height
Mass	320 g (with mounting rod and 5 m of lead wire)
Cable	M8 connector (IP68 rating) to interface to sensor housing; 5 m of four conductor, shielded, twisted-pair wire in a TPR jacket with pigtail lead wires



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