



4-Component Net Radiometer



Research Grade

Robust—4-way radiometer which requires little maintenance

Overview

The NR01* is a research-grade net radiometer that measures the energy balance between incoming short-wave and long-wave infrared radiation versus surface-reflected short-wave and outgoing

Benefits and Features

- > Internal resistive temperature detector (RTD) provides temperature compensation of measurements
- > Research-grade performance
- Internal 1 W heater reduces formation of dew and melts frost
- **Technical Description**

The NR01 consists of a pyranometer and pyrgeometer pair that faces upward and a complementary pair that faces downward. The pyranometers and pyrgeometers measure short-wave and far infrared radiation, respectively.

The NR01 includes an onboard RTD to measure the radiometer's internal temperature and a 1 W heater that minimizes the forma-

long-wave infrared radiation. Our dataloggers measure the NR01's output and control its internal heater. This net radiometer offers a professional solution for scientific-grade energy balance studies.

- > Separate outputs of short wave and long wave infrared radiation for better accuracy and more thorough quality assurance
- Robust—only requiring limited maintenance
- Connects directly to our CR6 and CR3000 dataloggers

tion of dew and melts frost. To reduce current drain, a relay is typically used to turn on the heater only when the solar radiation is less than 20 W m^{-2.}

Campbell Scientific's CR6 and CR3000 dataloggers can directly measure this radiometer. A CR1000 can also be used, but a 4WPB100 module is required to measure the internal RTD.

Mounting

To avoid shading or reflections and to promote spatial averaging, the NR01 should be mounted at least 1.5 m above the ground or crop canopy and away from all obstructions or reflective surfaces that might adversely effect the measurement. Campbell Scientific recommends mounting the NR01 to a CM300-series mounting pole at least 25 feet away from other mounting structures. The NR01 is attached to the CM300-series mounting pole via a CM204 or CM206 crossarm.

*The NR01 is manufactured by Huksenflux but cabled for use with Campbell Scientific dataloggers.



Ordering Information

Research-grade Net Radiometer

NR01-L Hukseflux 4-Component Net Radiation Sensor with user-specified cable length. Enter the cable length in feet after the -L. Recommended length is 50, 75, or 100 ft. Must choose a cable termination option (see below).

Cable Termination Options (choose one)

- **-PT** Cable terminates in stripped and tinned leads for direct connection to a datalogger's terminals.
- -PW Cable terminates in a connector for attachment to a prewired enclosure.

PRT Bridge Module

4WPB100 100 Ω 4-Wire PRT Bridge Module for interfacing the NR01's RTD with a datalogger that does not have a current excitation channel.

Specifications

- Sensor: Hukseflux's SR01 ISO-class, thermopile pyranometer, IR01 pyrgeometer, PT100 RTD
- Pyranometer Spectral Response: 305 to 2800 nm
- Pyrgeometer Spectral Response: 4500 to 50,000 nm
- Response Time: 18 s
- Sensitivity Range: 10 to 40 µV W⁻¹ m²
- > Expected Output Range: -0.1 to +50 mV
- Expected Accuracy for Daily Totals: ±10%
- Heater: 90 Ω, 1.6 W at 12 Vdc
- > Operating Temperature Range: -40° to 80°C
- Dimensions: 26.3 x 11.3 x 12.1 cm (10.4 x 4.4 x 4.8 in)
- Weight: 1.3 kg (2.9 lb) with 5 m cable; 0.9 kg (2 lb) sensor only
- Heater Current Drain: ~140 mA

