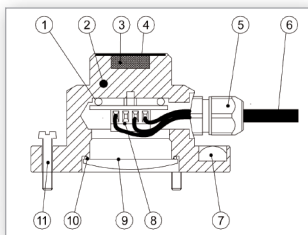


IR02

PYRGEOMETER

The IR02 is intended for outdoors meteorological FIR (Far Infrared) radiation observations from 4.5 to 50 μm . Improved measurement accuracy over competing sensor models is possible, due to an integrated heating element within the IR02 housing which serves to prevent dew and frost deposition effect on the LP02 window/lens surface.

The IR02 is suitable for measuring FIR radiative flux incident to a plane surface in W/m^2 . Employing entirely passive thermopile-based sensing technology, the IR02 generates a low level DC millivolt output signal proportional to the FIR flux exchange occurring between atmosphere, ground, or an object within the field of view (FOV) of the IR02 and its detector. The combination of instrument detector and solar-blind window/lens results in a spectrally flat FIR response from 4.5 to 50 μm . An integrated PT100 temperature sensor within the instrument housing allows for accurate calculation of the FIR radiation emitted by an object/body, including sky temperature. The IR02 is suitable for integration with most meteorological data loggers capable of measuring a millivolt output signal, and which support 3 or 4-wire PT100 temperature sensors. The IR02 is typically deployed alongside a pyranometer in meteorological networks and/or weather stations, for determining total short and long-wave global fluxes; also see NR01 and RA01 radiometer models for total global flux and net radiation measurement applications. For conventional horizontal plane mounting requiring accurate leveling, the IR02 is equipped standard with adjustable leveling screws and a bulls-eye bubble level; see leveling screws (11) and bubble level (7) illustration in Figure 1. The IR02 signal cable can be easily installed and replaced by the user, thus minimizing down-time and expense otherwise associated with instrument re-cabling by the manufacturer.



◀ Figure 1: IR02 pyrgeometer. (1) heater, (2) PT100 temperature sensor, (3) sensor, (4) FIR window/lens, (5) cable gland, (6) cable, standard length 5 m, (7) level, (8) screwed cable connection, (9) access for cable connection/replacement, (10) rubber O-ring, (11) leveling screw



APPLICATIONS

- ▶ Agrometeorology
- ▶ Climatology/Meteorology
- ▶ Material Testing

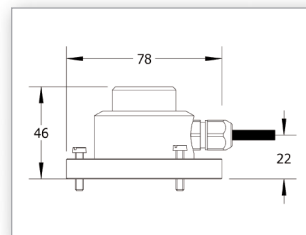
Note: Above applications are inclusive of, but not limited to the entire IR02 application range.

IR02 SPECIFICATIONS

Spectral range:	4.5 to 50 nm
Sensitivity (nominal):	15 $\mu\text{V}/\text{W}/\text{m}^2$
Response time (95%):	18 sec.
Range:	-1000 to +1000 W/m^2
Non-linearity ($\pm 250 \text{ W}/\text{m}^2$):	$\pm 1\%$
Temperature range:	-40 to +80 $^{\circ}\text{C}$
Temperature dependence:	$< \pm 0.1 \text{ }^{\circ}\text{C}$
Temperature sensor:	PT100
Calibration traceability:	ITS 90
Window heating offset:	$< 15 \text{ W}/\text{m}^2$ (1000 W/m^2 solar loading)
Non stability (drift):	$< \pm 1\%$ per year
Heating power:	1.6 Watt, @ 12VDC
Cable length:	5 meter standard (longer lengths optional)

OPTIONS

Additional cable length by the meter.



◀ Figure 2: IR02 dimensions. Standard cable length, 5 m. Cable can be installed / replaced by the user.