



## DELTA OHM S.R.L.

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### LP NET 14 : NET RADIOMETER



LP NET 14 is a 4-component Net-Radiometer for the measurement of the net radiation between  $0.3\mu\text{m}$  and  $45\mu\text{m}$ . The net-radiometer consists of two pyranometers (one for the measurement of the global radiation and the other one for the measurement of the reflected solar radiation) and a pair of pyrgeometers (one for the measurement of the infrared radiation emitted by the sky and the other one for the infrared emitted by the ground surface).

The LP NET 14 is equipped with a temperature sensor (NTC). The measurement of the temperature is needed for the measurement with the two pyrgeometers, in fact, the far infrared is derived by measuring the thermopile output and by the knowledge of the instrument's temperature. The net radiometer is suitable for outdoor use in all weather conditions and requires little maintenance.

#### Working principle

The pyranometers that make up the LP NET 14 measure the radiation for wave lengths between  $0.3\mu\text{m}$  e  $3.0\mu\text{m}$ , while the pyrgeometers measure the irradiance in the spectral range between  $4.5\mu\text{m}$  and  $45\mu\text{m}$ . The pyranometers are based on a thermopile sensor which sensitive surface is covered by a matt black paint so to allow the instrument not to be selective at various wavelengths. The pyranometer spectral range is determined by the transmittance of the two glass domes type K5. Radiant energy is absorbed by the thermopile black surface, creating a difference of temperature between the centre of the thermopile (hot junction) and the pyranometer body (cold junction). Thanks to the Seebeck effect, the difference of temperature between hot and cold junction is converted into a Difference of Potential. Also the pyrgeometers are based on a thermopile. In this case, to protect the thermopile, silicon discs are used. Silicon is transparent to wavelengths longer than  $1.1\mu\text{m}$  therefore on the inside of the window there is a filter to block radiation up to  $4.5\text{--}5\mu\text{m}$ . The silicon external surface, which is exposed to weathering, is coated with a scratch-resistant coating (DLC) to ensure strength and durability in all weather conditions. The anti-scratch coating offers the advantage of cleaning the surface without risk of scratching the window.

#### Technical Specification

**PYRANOMETERS** : II° Class pyranometer according to ISO 9060

**Typical sensitivity** :  $10\mu\text{V}/(\text{W}/\text{m}^2)$

**Impedance** :  $33\Omega$  to  $45\Omega$

**Measuring Range** :  $0 - 2000\text{ W}/\text{m}^2$

**Field of View** :  $180^\circ$

**Spectral Range** :  $305\text{ nm}$  to  $2800\text{ nm}$  (50%)

(Dome Transmission)  $335\text{ nm}$  to  $2200\text{ nm}$  (95%)

**Working temperature** :  $-40^\circ\text{C}$  to  $80^\circ\text{C}$

#### PYRGEOMETERS

**Typical sensitivity** :  $5$  to  $10\mu\text{V}/(\text{W}/\text{m}^2)$

**Impedance** :  $33\Omega$  to  $45\Omega$

**Measuring Range** :  $-300$  to  $+300\text{ W}/\text{m}^2$

**Field of View** :  $160^\circ$

**Spectral Range** (Silicon Window Transmission) :  $5.5\mu\text{m}$  to  $45\mu\text{m}$  (50%)

**Working Temperature**:  $-40^\circ\text{C}$  to  $80^\circ\text{C}$

**Cable** : 10 meter cable (Cable can be extend up to 60 meter)

#### Supplied Including Kit:-

- Net Radiometer (4 - Component)
- 2 Bird Spikes
- 2 Recharges of desiccant
- Bubble level
- Calibration Certificate
- 10 Meter cable with connector
- Manual

#### Indian Distributor

**Shailron Technology Pvt. Ltd.**

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