

Leaf-&-Air-Temperature

Type LAT-B2 (Broadleaf)

Technical Specifications



Leaf temperature sensor type LAT-B2 on Crassula spp.

The LAT-B2 (**Leaf-&-Air-Temperature Broadleaf** type) is a highly precise sensor for continuous measurements of leaf surface and ambient air temperatures. Absolute air temperature (T_{air}) and leaf temperature (T_{leaf}) are measured via two highly precise micro thermistor probes. Sensor-individual matching of the two probes, ensures high measurement precision of leaf-to-air temperature difference ($\Delta T_{\text{leaf-air}}$). Designed for broad leaves, the sensor is mounted at the leaf by means of a ultra-light-weight carbon frame.

Technical Specifications

Name	LAT-B2 : Leaf-&-Air Temperature Sensor, broadleaf type
Application position, suitable for leaf size	Leaf surface, standard size for leaves between > 3 to 20 cm length
Measurement range	-25 to + 70°C
Accuracy	Sensor dependent: T_{air} & T_{leaf} : +/- 0.2 °C $\Delta T_{\text{leaf-air}}$: +/- 0.1 °C (sensor-individual dual-probe matching!) Logger dependent: e.g. CR1000: +/- 0.2 °C
Resolution	Theoretically infinite, depends on data logger (e.g. CR1000-Logger with 667 μV resolution within a Signal range of +/- 2500mV: 0.1°C)
Size and weight	2 cm x 2 cm x 0.1 cm, ca. 2 g
Output signal type	Supplied with 2500 mV, output signal is 0 to 2500mV
Power supply	Excitation voltage V_{ex} usually switched 2500 mV, power up 100ms max. Power consumption negligible.
Operating conditions	Air temperature: -25 to 70 °C, air humidity: 0 to 100%

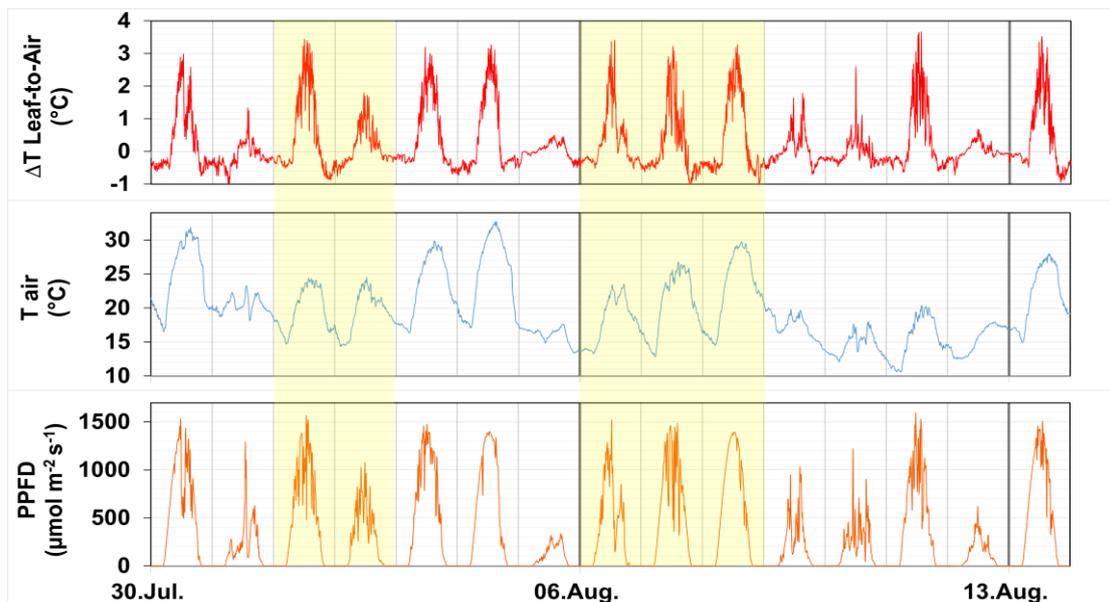


Fig. 1: Comparison of temperature difference between leaf surface and ambient air ($\Delta T_{\text{leaf-air}}$), air temperature (T_{air}) and solar radiation (PPFD).

Upper: Diurnal variations in temperature difference between upper leaf surface and ambient air ($\Delta T_{\text{leaf-air}}$, measured via LAT-B sensor) of a sun exposed leaf of a mature beech tree at the experimental site “Kranzberger Forst” of the TU Munich.

Middle: Diurnal variations in air temperature (T_{air} , measured via LAT-B sensor), at canopy height (27m above ground)

Lower: Diurnal variations in solar radiation above canopy, given in photosynthetic photon flux density (PPFD)