

Pyrgeometer

- Accurately controls your thermal screen
- Enables you to monitor heat loss
- Anticipates pipe temperature increases
- Prevents surprises
- Controls screen based on outgoing radiation



Save Energy by Measuring the Outgoing Radiation at Night

When the skies are clear, outgoing thermal radiation or heat loss from your glasshouse is higher than at the same outside temperature in cloudy conditions. This means that during clear nights, the thermal screen should be closed sooner than when it is overcast. Outgoing radiation is measured using a pyrgeometer. Once connected to your climate computer, you can program the thermal screen to close based on the outgoing radiation.



Pyrometer

A pyrometer measures the outgoing radiation in the infrared light spectrum (4.5 to 40 μ m). The net outgoing radiation is expressed in W/m² (the same unit used for incoming radiation). The sensor is extremely precise and has a standard deviation of just 1%. The measurements taken are also compensated for temperature.

Current Practice

The climate computer controls various processes based on the incoming radiation. Both the initial calculations and the actual control actions are carried out using the measurements from a pyranometer (popularly termed a Kipp Solarie meter). At night, this parameter is not available, since there is no incoming radiation. As a result, climate control during night time is mainly based on the outdoor temperature, indoor ambient temperature, relative humidity and humidity deficit (other parameters are wind speed, precipitation and, if applicable, plant temperature). The indoor ambient temperature and, more importantly, the plant temperature are mainly affected by the outgoing radiation.

Automatic Screen Adjustment

The Pyrometer enables the thermal screen to be opened or closed based on the level of outgoing radiation. If the outgoing radiation is high, the thermal screen should close sooner than if the outgoing radiation is low. This can be fully automated, since you can program your climate computer to adjust the outside temperature at which the screen closes based on the outgoing radiation.

Other Options

It is also possible to incorporate the outgoing radiation measurements in your heating strategy. By anticipating the level of outgoing radiation, you can prevent the heating temperature being set too high.

Much Still to Learn

The Pyrometer allows you to explore new climate control limits without taking risks. New developments in sensor equipment, such as this outgoing radiation sensor and plant temperature, fruit temperature and PAR light sensors give you the ability to control virtually all environmental factors which may affect your crop. The Pyrometer is fully supported by the MultiMa climate computer.

More information

