



# WATER & AIR

## Air Temperature Factsheet

Skye Instruments have manufactured their own design of relative humidity and air temperature probes since 1986. There is a choice of air temperature sensing elements with differing accuracies and outputs, for compatibility with most dataloggers and controllers. All probes are specifically designed for measurements outdoors.

Choose from a PT100 platinum resistance temperature sensor, a thermistor temperature sensor or an electronic temperature sensing digital device. All are fully sealed against moisture ingress, suitable for use in condensing environments ranging from 0-100%RH. The sensor outputs can be direct from the PT100 or thermistor elements, or linearised to a 0-1V signal. Amplified voltage or 4-20mA versions are also available. The new **rht+** probe also has a RS232 output, with SDI-12 soon to follow.

The PT100 temperature element has the highest accuracy of the three sensors on offer throughout the operating range of -40 to +60°C. Skye's uses only a fully glass sealed, 1/3rd DIN platinum wire wound PT100 element. This has been proven to be highly accurate, stable and robust over many years of use in outdoor installations. From past records of calibration checks, often after several years of use, figures show an average of 0.17°C change (minimum 0.01°C, maximum 0.4°C). The alternative thin film type PT100 element, as used by other manufacturers, cannot claim such long term stability and is prone to drift with exposure and time.

To measure air temperature accurately, it is essential the sensor is housed within a Radiation Screen. These screens are made up of a number of 'dishes', stacked vertically at an optimum distance to allow free air flow around the sensor tip. The dishes are white and their shape carefully designed in order to reflect as much solar radiation as possible, so that shaded air temperature is recorded with minimal heating effect due to incident or reflected solar radiation.

Skye has designed a new range of radiation screens, smaller and more lightweight than previous models. There are 3 naturally aspirated versions to choose from, each with a different number of white dishes suitable for different applications and installation sites. A solar powered, aspirated model will be available very shortly as an addition to this range.

The standard radiation screen has 12 dishes and is suitable for most applications. Additional dishes are added for high accuracy measurements or very high radiation sites. A smaller version with less dishes is also available for very windy sites where a reduction in wind resistance is required.

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