

MAINTENANCE HINTS FOR METEOROLOGICAL SENSORS

AIR TEMPERATURE SENSOR 3455:

Sensor is based in platinum sensing element.

A seven-point calibration is performed in a water bath.

This sensor has very low ageing and recalibration is only required every second year.

Keep the radiation screen clean.

Use soapy water if necessary.

AIR PRESSURE SENSOR 2810:

This sensor is calibrated using a ten-point calibration against a reference mercury precision barometer. The sensor has a linear characteristic.

For check of calibration we recommend annual single point comparison, e.g. against a precision barometer reference (to disclose possible discrepancies due to ageing).

Possible deviation in value should be added or subtracted to original A coefficient value.

RELATIVE HUMIDITY SENSOR 3445:

To remove dust and salt deposit from the sensor, clean or change the filter.

In the field the calibration of the sensors is best checked by comparison with a psychrometer.

This check should be performed annually.

SOLAR RADIATION SENSOR 2770:

Check the sensor at zero radiation by covering it so that no radiation is admitted to it.

The reading should then be zero \pm 2mW/cm².

The glass dome should be kept clean. Use soapy water and a soft cloth.

RAINFALL SENSOR 3864:

Maintenance interval:

Maintenance should be performed at regular intervals, depending upon on-site conditions.

Procedure:

Any foreign objects, such as leaves and other biological material, should be removed from the sensor funnel.

Check that it is possible to remove/replace the dripping filter (the black pin at the bottom of the funnel), and that water flows freely through the sensor.

Accumulation of dirt on the sensor body can be cleaned off with a soft brush and by use of mild soap water. Special care should be taken, not to get any dirt and soap water into the sensor. The best way is to hold the sensor upside down while doing this.

Do not use any chemicals or solvents.

Check for physical damage of the sensor.

Function check:

By putting your ear very close to the sensor funnel, and at the same time pour water slowly into the funnel; you should be able to hear the clicking sound of the tipping spoon operating inside the sensor.

Calibration:

The sensor calibration is performed with the sensor connected to Datalogger 3660.

The general formula for converting the raw data reading, measured by the Datalogger, to engineering units is:

$$\text{Rainfall, (mm)} = A + BN + CN^2 + DN^3$$

where N is raw data reading, A, B, C and D are the calibration coefficients.

The coefficients are fixed and the same for all Rainfall Sensors 3864 and 3864H.

$$A=0 \quad B=2.000E-01 \quad C=0 \quad D=0$$