Compact Sling Psychrometer

instructions for use

Principles

The Sling Psychrometer determines %Relative Humidity by measuring the evaporation of water into the surrounding air.

Two thermometers are placed in flowing air, one thermometer bulb being covered by a wet wick. Evaporation from the wetted bulb causes its temperature to be depressed relative to that of the dry bulb.

In dry air evaporation will be rapid and the depression will be greater, giving a low %RH reading.

In humid air there will be little evaporation and the depression will be small, giving a high %RH reading.

If the air is completely saturated no evaporation can take place so both the wet and dry bulb thermometers will give the same reading. This equates to 100%RH.

The %RH can be read off the Slide rule calculator integrated into the psychrometer. Standard Humidity Tables can also be used.

Taking a reading

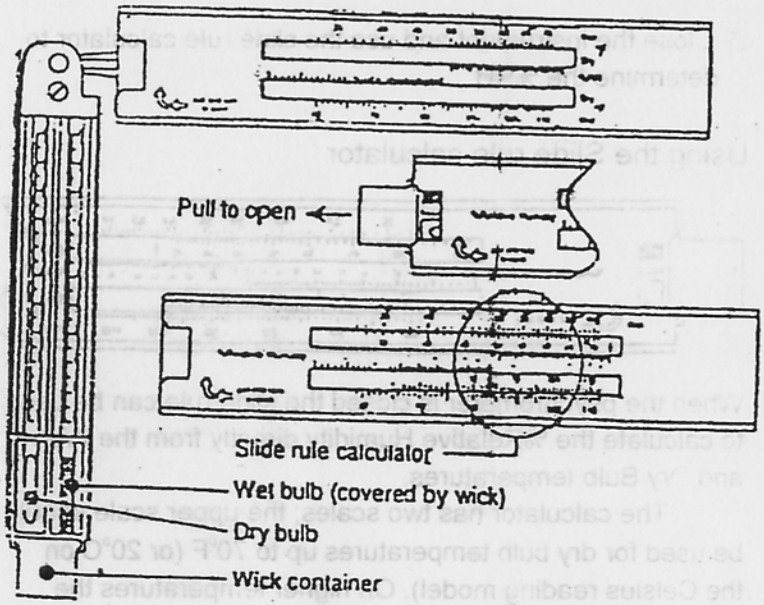
① Open the instrument by withdrawing the inner frame from the case

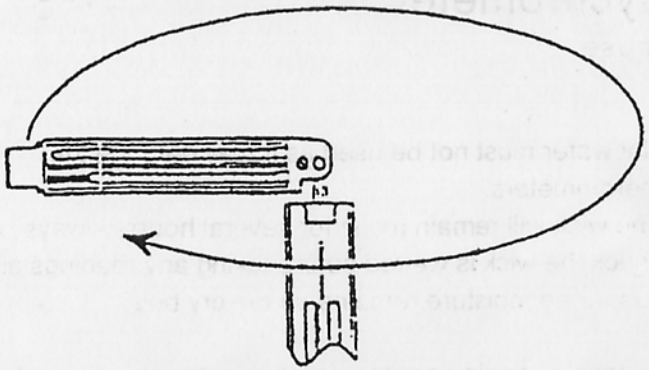
② Thorougly wet the wick by placing the exposed end under cold running water or immersing it in water for about 30 seconds. This will wet both the exposed wick and that coiled in the wick container.

Hot water must not be used as it may damage the thermometers.

The wick will remain moist for several hours, Always check the wick is wetted before taking any readings and ensure no moisture remains on the dry bulb.

③ To take a reading set the psychrometer at right angles and, holding the case, rotate the frame for 30 to 60 seconds at between 2 and 3 revolutions per second.

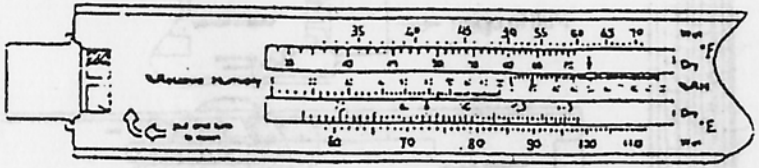




④ Stop revolving the instrument and note the Wet and Dry Bulb temperatures.

⑤ Close the instrument and use the slide rule calculator to determine the %RH

Using the Slide rule calculator



When the psychrometer is closed the slide rule can be used to calculate the %Relative Humidity directly from the Wet and Dry Bulb temperatures.

The calculator has two scales; the upper scale should be used for dry bulb temperatures up to 70°F (or 20°C on the Celsius reading model). On higher temperatures the lower scale should be used.

to calculate the %RH reading:

① Locate the Wet bulb temperature on the relevant scale.
② By sliding the inner frame out of the case, align the Dry bulb temperature with that of the Wet bulb.
③ Read the %Relative Humidity from the centre scale at the location of the arrow

In the picture above, the Wet Bulb temperature of 50°F is lined up with the Dry bulb temperature of 60°F. This gives a reading of 49% Relative Humidity.

Maintenance and spare parts

If the wick becomes worn or dirty it can be cut off and replaced with wick from the wick container. The wick container can be removed with a twisting action and a new length of wick withdrawn.

Broken thermometers can be replaced by removing the screw at the swived end of the frame.

A Spares Kit comprising two replacement thermometers and a spare container full of wick is available for the compact psychrometer. When ordering the spares kit please state whether you require spirit or mercury filled thermometers and whether they should read in °C or °F.