cedargrove_temperaturetools

A collection of CircuitPython helpers for calculating and converting temperature.

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Implementation Notes

Hardware:

Software and Dependencies:

- Adafruit CircuitPython firmware for the supported boards: https://github.com/adafruit/circuitpython/releases

cedargrove_temperaturetools.dew_point

Dew Point

dew_point(deg_c, humidity, verbose=False)

Calculate dew point temperature from measured temperature (Celsius) and humidity (percent). Returns the calculated dew point (Celsius) and summary description. Detailed description is provided if ***verbose=True***. Dew point value is constrained to the range of 0 to 40 (Celsius).

Parameters:

- **deg_c** – The temperature in Celsius. No default.
- **humidity** — The humidity in the range of 0 to 100 percent. No default.
- **Verbose** — The observation detail switch. False for summary; ***True*** for a detailed description. Defaults to ***False***.

Example:

```
>>> from cedargrove_temperaturetools.dew_point import dew_point
>>> dew_point(24, 50)         # Dew Point Calculator
(12.91, 'Safe')
>>> dew_point(24, 50, verbose=True)         # Dew Point Calculator
(12.91, 'Safe: Comfortable.')
```

cedargrove_temperaturetools.heat_index

Heat (Comfort) Index

heat_index(deg_c, humidity, verbose=False)

Calculate heat index temperature from measured temperature (Celsius) and humidity (percent). Returns the calculated heat index (Celsius) and summary description. Detailed description is provided if ***verbose=True***.

Parameters:

- **deg_c** – The temperature in Celsius. No default.
- **humidity** — The humidity in the range of 0 to 100 percent. No default.
- **Verbose** — The observation detail switch. False for summary; ***True*** for a detailed description. Defaults to ***False***.

Example:

```
>>> from cedargrove_temperaturetools.heat_index import heat_index
>>> heat_index(24, 50)   # Heat Index Calculator
(25.4, 'Safe')
>>> heat_index(24, 50, verbose=True)   # Heat Index Calculator
(25.4, 'Safe: Heat index is not a factor.')
```

cedargrove_temperaturetools.unit_converters

Temperature Unit Conversion

celsius_to_faherenheit(*deg_c*)

Convert degrees Celsius to degrees Fahrenheit.

Parameters:
- **deg_c** – The temperature in Celsius. No default.

faherenheit_to_celsius(*deg_f*)

Convert degrees Fahrenheit to degrees Celsius.

Parameters:
- **deg_f** – The temperature in Fahrenheit. No default.

celsius_to_kelvin(*deg_c*)

Convert degrees Celsius to Kelvin.

Parameters:
- **deg_c** – The temperature in Celsius. No default.

kelvin_to_celsius(kelvins)

Convert Kelvin to degrees Celsius.

Parameters:
- **kelvins**– The temperature in Kelvin. No default.

Example:

```
>>> from cedargrove_temperaturetools.unit_converters import *
>>> celsius_to_fahrenheit(24)
75.2
>>> fahrenheit_to_celsius(75.2)
24.0
>>> celsius_to_kelvin(24)
297.15
>>> kelvin_to_celsius(297.15)
24.0
```