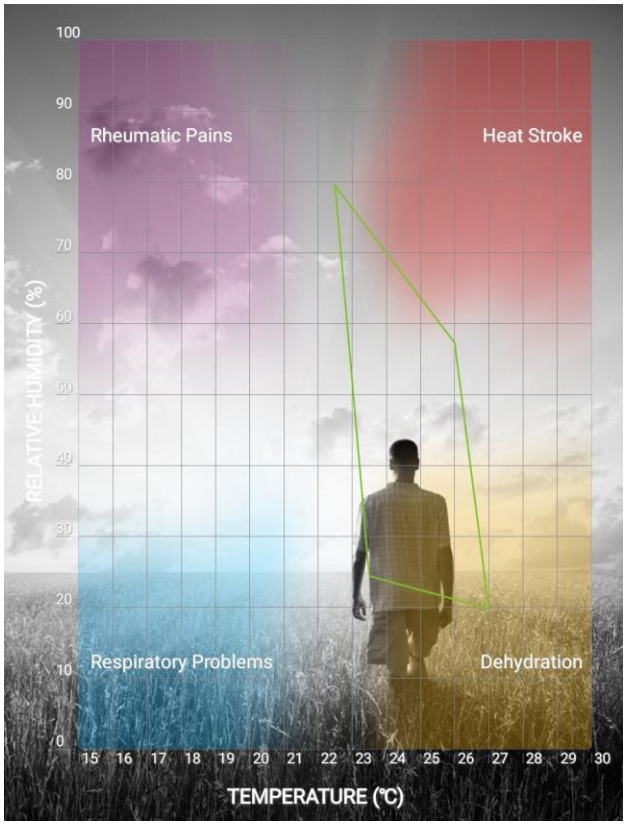
COMFORT GADGET

Humidity and Temperature display for better comfort

The COMFORT GADGET is a simple yet helpful device which helps you to keep your environment in so called “comfort zone” or within “thermal comfort”. This thermal comfort zone is defined as a temperature and humidity combination which helps humans to keep their metabolic processes run smoothly and stay in good mood. To stay within comfort zone is also very important in order to avoid Rheumatic Pains, Heat Stroke, Respiratory Problems and Dehydration.



Pic.1 Comfort zone (inside green polygon, source: SENSIRION Android application)

According to this picture there are 4 dangerous zones defined:

1. Combination of too Low Temperature and too Low Humidity may cause Respiratory problems
2. Combination of too Low Temperature and too High Humidity may cause Rheumatic pains
3. Combination of too High Temperature and too High Humidity may cause Heat Stroke
4. Combination of too High Temperature and too Low Humidity may cause Dehydration

Setup Instructions: To switch on the device please remove the plastic band with orange marking on the back of the device and let the temperature and humidity values stabilise for few minutes. Please do not touch the sensor and make sure the device is placed close to you where the temperature and humidity is the same as around you, e.g. on the table.

Basic operation: this is the default operating mode, in this mode the device shows Humidity in %RH and Temperature in °C and periodically shows warnings if the Temperature or

Humidity is out of Comfort zone. To switch temperature values into °F please press MD (MODE) button shortly. If you want to see the Dew Point value, please press MD button again. Press MD button again to get back in Basic operation mode. You can use backlight (BL button) in poor light conditions or during night to see the values on the display. The backlight is switched on for 5s after BL button is pressed. The small arrow shows RH or T values are out of Comfort Zone range and RH or T should be adjusted in the room up or down.

Battery replacement: the battery is expected to run the device at least one year (depends on backlight usage). To change the battery please remove the old one and replace with the fresh one. Take care of polarity of the battery, plus pole is marked with "+" symbol on the back of the device. Please use only **Lithium Thionyl Chloride** 3,6V AA size batteries to power the device (e.g. SAFT LS14500 or TADIRAN TL4903/S, EVE ER14505 or XENO XL-060F)

Warning: Humidity and Temperature sensors are highly accurate environmental sensors and as such they are not ordinary electronic components. The opening in the package exposes the sensor to the environment and makes it susceptible to pollutants. While applying sensors in the field in ambient environment is not critical, pollutants are known to occur in manufacturing environments and during storage. The sensor shall not get in close contact with volatile chemicals such as solvents or other organic compounds. Especially high concentration and long exposure must be avoided. Ketenes, Acetone, Ethanol, Isopropyl Alcohol, Toluene, etc. are known to cause drift of the humidity reading – irreversibly in most of the cases. Please note that such chemicals are integral part of epoxies, glues, adhesives, etc. and outgas during baking and curing. These chemicals are also added as plasticisers into plastics, used for packaging materials, and do out-gas for some period. Acids and bases may affect the sensor irreversibly and shall be avoided: HCl, H_2SO_4, HNO_3, NH_3 etc. Also Ozone in high concentration or H_2O_2 have the same effect and therefore shall be avoided. Please note, that above examples represent no complete list of harmful substances. The sensor shall not get in contact with cleaning agents (e.g. PCB board wash after soldering) or strong air blasts from an air-pistol (not oil-free air). Applying cleaning agents to the sensor may lead to drift of the reading or complete breakdown of the sensor. Ensure good ventilation (fresh air supply) to avoid high concentrations of volatile chemicals (solvents, e.g. ethanol, isopropanol, methanol, acetone, cleaning solutions, detergents…).

Information for makers:
This device is Arduino based, which means anybody can freely modify the source code. For hackers, please visit
https://drive.google.com/open?id=1hPk31YAgmxmFq20SVffK6nRQS2UdpRDc
for complete documentation, source code and hacking instructions or email to
info@comfortgadget.org