Zephyrus Wind Meter

Main functions

This application brings the functionalities of a basic **Anemometer (Wind Speed Meter)** to your phone: mobile hardware introduce some limitations (lower wind pressure range and accuracy), but using it properly you can collect useful information from your surveys.

Wind Speed Meter

- dynamic wind speed measuring
- simple calibration settings
- 4 values display (cur, avg, min max)
- wind direction display (compass)
- wind speed/time chart (m/s)
- share text/screen data

Quick Start

1. **Calibration (only the first time)**: check/set the **calibration values** of your mobile (see the **settings page** and the **calibration page**)
2. Check that the mobile microphone does not have any "wind shield" (such as a cover or label)
3. avoid measurement in presence of loud noises (heavy traffic, motorbikes, trucks, loud talking, shots)
4. keep your fingers away from the mobile microphone (hold it by the top) and keep it in vertical position
5. orient the back of the phone upwind (keeping the display in front of you)
6. click the Wind meter button
7. A long click on the decibel number resets the current measurement
8. A click on the pause button stops the measurement, a click on the play button restarts the measure

Start Page

Button functions:

1. **Dynamic**: this mode (100ms) is useful to measure a steady state wind (small fluctuations) or to plot and view on a chart the details of a dynamic wind. Minimum value, maximum value and Average value of the entire observation period are also provided. In this mode it is possible (**menu functions**) to set an **instantaneous threshold** (if exceeded it changes the max value color to red), to **share text/screen data**

2. **Help**: User guide

Menu functions:

1. **HELP**: it shows the app user guide
2. **SETTINGS**: app settings page
3. **HELP US**: email link to our service

Settings Page

This page allows to personalize all the app settings (access from the Start Page menu):

1. **Wallpapers**: it is possible to select the favorite wallpaper (default: sky)
2. **Maximum SPL***: it is possible to specify the microphone maximum SPL in dB (default 90, suitable for most mobiles)
3. **Noise level ***: it is possible to specify the background noise level (default 4); **sometimes this level needs a calibration** (see the calibration page for more details)

* Remember that a wrong setting will effect the accuracy of your measurements.
If you do not have the correct information of your mobile leave the default values or see the calibration section.

Calibration

The **default calibration values are suitable for most smart phones**. Some mobiles are automatically calibrated in the first installation phase (Samsung GT-I9000, GT-9300, GT-S5570). If necessary it is possible to change the calibration parameters in the settings page. For a perfect calibration you need a professional anemometer, but you can get a fair calibration with the following:

1. **Noise level**: in the settings page set the noise level to 0; start the dynamic function (in m/s) in a silent room (no external noises like in a library or a bedroom), read after 10 seconds the average value (fix) : if >0, set the noise level to the fix rounding up to the nearest integer (in the settings page) .
2. Specify the **Maximum SPL** of your mobile : it is possible to specify the microphone maximum SPL in dB in the settings page (default 90, suitable for most mobiles)

Troubleshooting

1. **Wrong SPL maximum value**: all your measurement are higher or lower than expected. Enter in the settings menu and select the correct SPL maximum value
2. **Attenuation on mobile microphone**: your measurements never reach the maximum possible wind speed (the threshold blue line, see next item) even with a high wind (or just with a strong blow on the mic): **restart android**
3. **No signals detected below 1 m/s or over 20 m/s:** The smart phone microphones do not work under/over a specific pressure. In the threshold menu you can display the blue line of the maximum wind speed (Mic Maximum) that can be detected by your microphone with the current calibration. For instance a smartphone with a microphone with a maximum SPL of 90db without any special windshields cannot measure wind speeds greater than 16 m/s: the background noise level on your signal can introduce a further reduction.