

# Weather Station for our Friends in Africa

Current partners: Uganda, Benin, Ghana


## Idea

We build our own data loggers based on ESP32. Data transmission is done via Wifi, Cellular Network or LoRaWAN.

## Sensors

An initial set of sensors:

### Tipping Bucket Rain Gauge



**Rain Sensor**

Comply with National Standard  
GB/T 21978.2-2014

Precise Measurement

304 Stainless Steel

Strong Anti-interference

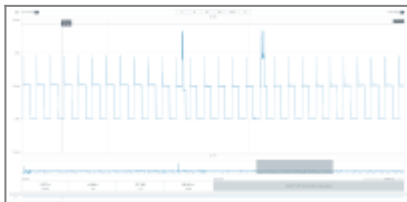
UICPAL Sensors

Data Sheet: [rs-yl-n01-5.pdf](#)

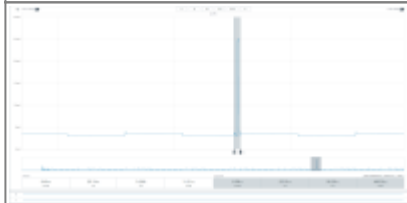


Inside of the Rain Gauge and PCB

### Current Consumption



The current consumption of the rain gauge with 5V supply voltage is around 3.5mA on average. The two spikes in the screenshot are caused by the bucket tipping. The oscillation in the voltage is caused by a blinking LED on the PCB.




Reading data from it increases the current to around 25mA for 60ms.

### Wind Velocity (Anemometer)

**Wind Speed Transmitter**

RS485  
Output → 4-20mA  
0-5V  
0-10V



- Small Rotational Resistance
- Highly Sensitive
- Waterproof and Anti-corrosion
- Resolution: 0.1 m/s
- Range: 0-30m/s

**UICPAL Sensors**

Data Sheet: [pr-3000-fsjt-n01.pdf](#)

## Wind Direction

**Wind Direction Sensor**

Output RS485 / 4-20mA / 0-5V / 0-10V



- Anti-corrosion and rust prevention
- Accurate measurement
- Strong anti-interference ability
- The range is wide
- Range: 8 directions

**UICPAL Sensors**

Data Sheet: [pr-3000-fxjt-n01.pdf](#)

## Air Temperature

- PT100 (best)
- DS18B20

## Air Humidity

## Air Pressure

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