Laser Egg+ CO2 Smart Air Quality Monitor specification and working instructions

Name: Laser Egg+ CO2 Smart Air Quality Monitor

Category: Air Quality Monitoring Equipment

Features:

1. Accurately measuring and displaying Air Quality Index following the standard of either AQI-CN or AQI-US;
2. Accurately measuring and displaying the particle counting of PM>0.3um and PM>2.5um;
3. Accurately measuring and displaying the concentration of PM2.5 in ug/m^3;
4. Accurately measuring and displaying the air temperature and humidity in the current environment;
5. Accurately measuring and displaying the CO2 concentration;
6. Equipped with high sensibility gravity sensor for smart working mode switching without manual intervention;
7. Equipped with smart Wi-Fi module for convenient internet connection, allowing Laser Egg+ CO2 Smart Air Quality Monitor to upload the sensor data to the cloud in real time;
8. Working with iOS and Android app, allowing the users to acquire sensor data remotely and also to control the monitor;
9. Unique online calibration technology, allowing to monitor the air quality in different regions more accurately;
10. Unique HomeKit features, allowing smart control, remote monitoring and weather forecasts.

Suitable for: Home environments, outdoor environments, environmental monitoring institutes, factories, vehicles, and also for scientific and educational purposes, and labs.

Environment: Homes, offices, hotels, restaurants, shops, etc.

Specifications:

Connection: Wi-Fi

Integrated battery: Lithium battery

Input voltage: DC-5 V

Input current: 1 A

Power: 2.5 W

Range:

AQI: 1~500;

PM2.5 concentration: 1~999 ug/m³;

PM count: 0~65536;

Temperature: -20~60℃;

Humidity: 0~100%RH;

CO2 concentration: 400~5000ppm.

Accuracy: ±8%

Working current: 600 mA

Display: 2.4inches, 256 colors

Size: φ106*88mm

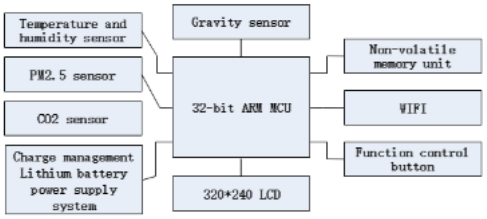
Response time: 10~100ms

Net weight: 220g

Introduction:

1. Hardware introduction

The system structure of Laser Egg+ CO2 Smart Air Quality Monitor is shown in below diagram. The air quality monitor consists of:



① Sensor module - Sampling the environment data, including laser PM2.5 sensor, Temperature/humidity sensor SHT30, CO2 sensor Senseair-S8, gravity sensor ADXL345.

② MCU controlling module – is responsible for all Laser Egg+ CO2 Smart Air Quality Monitor controlling. MARVELL88MW302 processor is used as the MCU. It is used for data format parsing, PM2.5 concentration calibration, adjusting the working mode of the Laser Egg+ CO2 Smart Air Quality Monitor based on the signals from the gravity sensor, and to switch the displays in the system according to the manual intervention via the buttons.

③ Display module – includes a LCD screen and the UI buttons. The screen can display the PM2.5 values in three modes, and also the battery state including charging and discharging.

④ Communication module – Wi-Fi module. It is used for the remote communication of Laser Egg+ CO2 Smart Air Quality Monitor. It can upload the data acquired by the multiple air sensors, and also receive the commands sent by the user via app on smart phones.

⑤ Power module – including the lithium battery system, charge/discharge management chip. It is used for the power supply of the whole system.

2．Sensor introduction:

Laser Egg+ CO2 Smart Air Quality Monitor uses a particle sensor based on laser scattering.

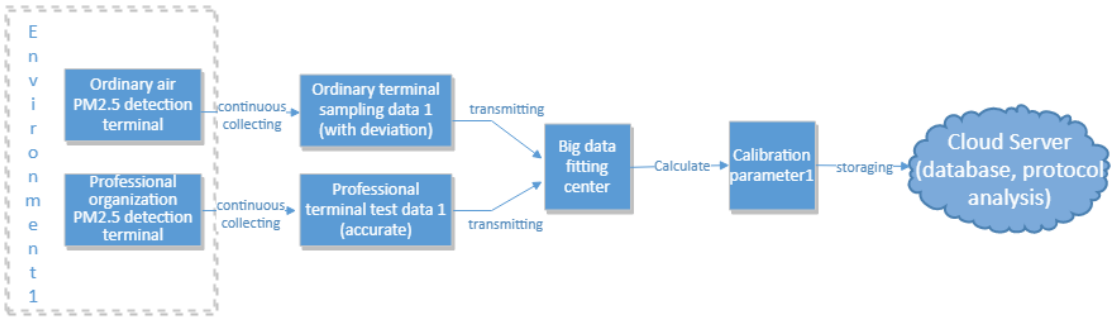
The sensor contains a laser generator and a photoelectric receiver. It can convert laser scattering caused by the particles to electrical signals, which are calculated into particle counting and concentration with algorithms.

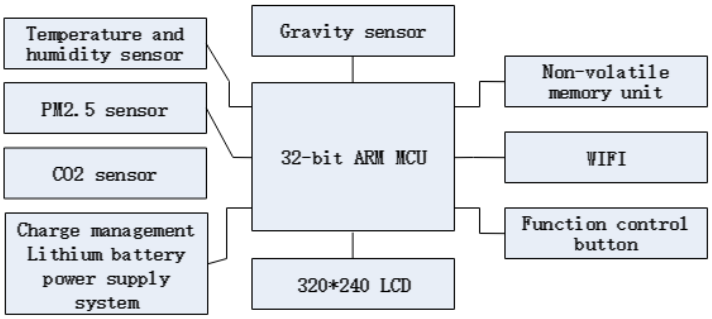
Laser based particle sensor is considered to be more accurate among all scattering particle sensors.

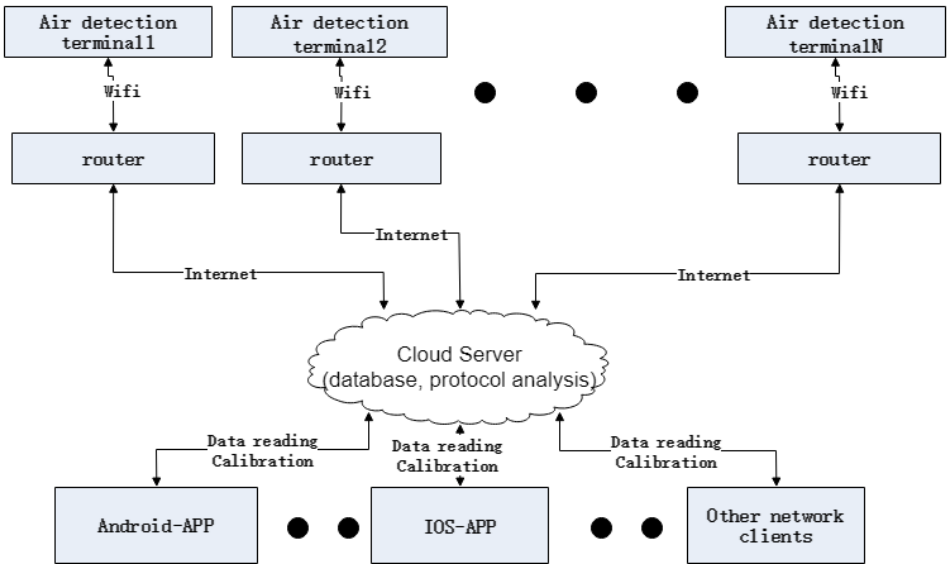
CO2 sensor is based on non-dispersive infrared monitoring technology. The S8 sensor by Senseair is considered to be a high-end sensor.

3. System operations:

Refer to the below chart for Laser Egg+ CO2 Smart Air Quality Monitor opertations







1. Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

2. Adapter shall be installed near the equipment and shall be easily accessible.

3. The operating temperature of the EUT can't exceed 60℃ and shouldn't be lower than -20℃.

4. The plug considered as disconnect device of adapter.

5. The device complies with RF specifications when the device used at 20cm form your body

6. The product shall only be connected to a USB interface of version USB2.0.

FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

Company neme: Origins Techonlogy Limited

Company address: Laku Hutong #20. Dongcheng District,Beijing,China