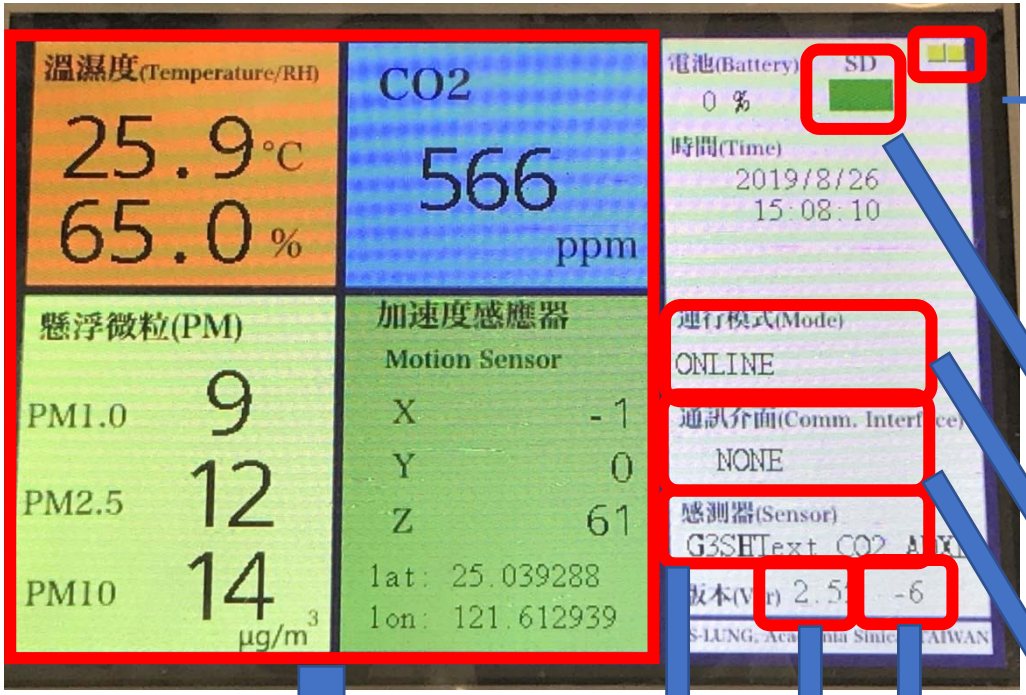
Hands-on Session for Environmental Sensors

How to setup AS-Lung

- Connected with LCD monitor
- Connected with battery power

You can see the startup screen

Status check via external LCD



Left: instrument status, green-yellow flash show the instrument status is ready

Right: internet communication status, green light show the network status is ready; yellow light show network is not ready

SD card status:
Green light: SD card is ready
Red light: check SD card

Mode(log interval):
Online: 15sec/data
Sleeping 60:60 sec/data ….

Comm. Interface:
Data transmission type,
Nonw, 4G/3G, WiFi or NBioT

Real time sensor values of different sensors

Selected sensors of AS-Lung

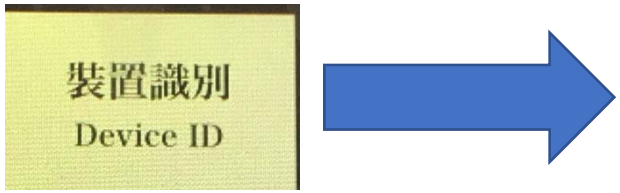
Framework version of AS-Lung and LCD monitor

How to configure AS-Lung

- Touch the screen with a finger nail

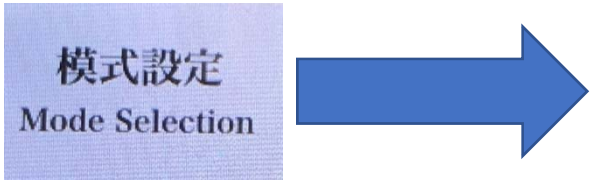
Configure AS-Lung: Device ID

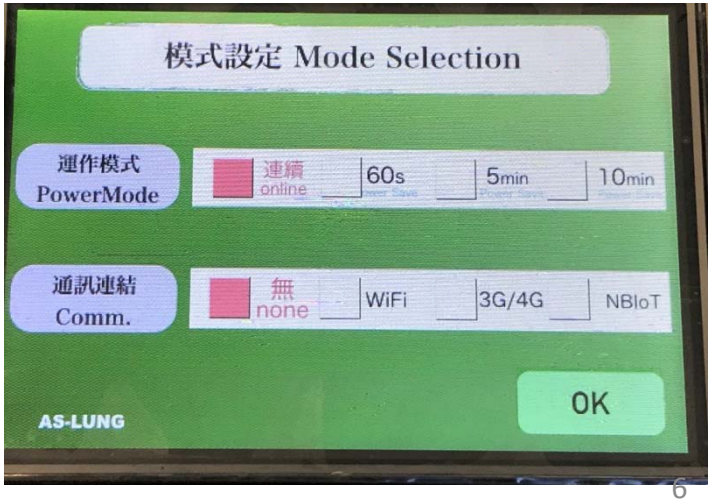
- Touch the device ID icon
- The device ID is WiFi MAC ID,
- The ID is unique.
- You cannot change the device ID.



Configure AS-Lung: Mode Selection

- This selection is to select log interval and data transmission mode you want.
- You need to select data transmission mode first which will limit the selection of log interval.





Configure AS-Lung: Mode Selection

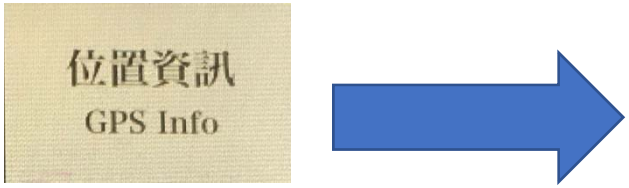
Types	Comm. Mode	15 sec	1 min	5 mins	10 mins
AS-Lung-P	None	√	√	√	√
	WiFi	√			
AS-Lung-O	None	√	√	√	√
	WiFi	√			
	3G/4G		√	√	√
	NB-IoT		√	√	√

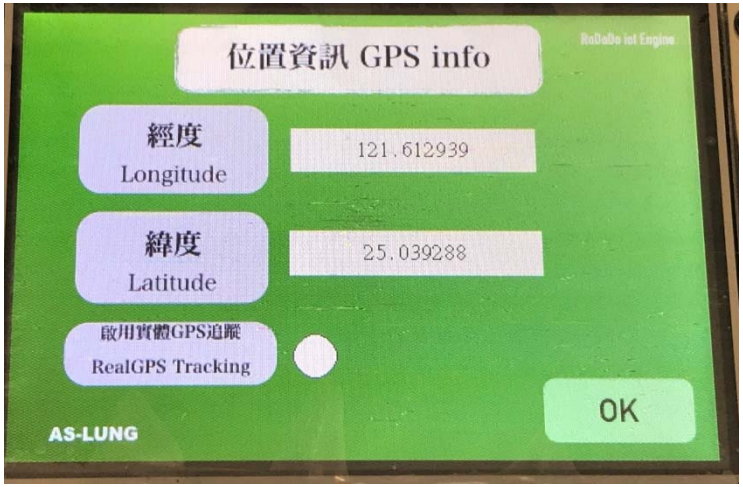
Configure AS-Lung: WiFi Setup

- WiFi SSID and password only support number and English alphabet.
- We suggest select WPA to protect data.

Configure AS-Lung: GPS Info

- For portable version, you can select real GPS to record the track.
- For outdoor version, you can get the GPS information from Google map, and key in into the input box .

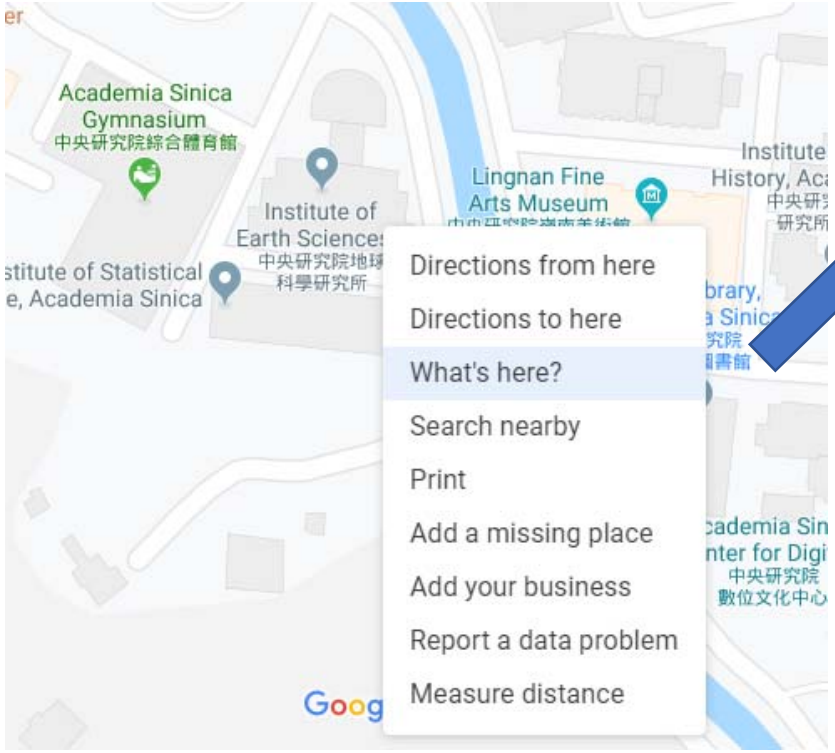


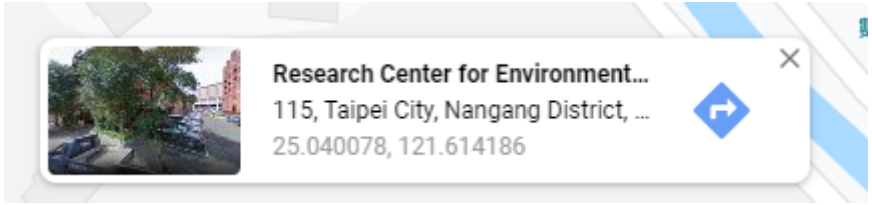


Note: If you do not want to record the track, remove GPS sensor from AS-Lung-P and DONOT select RealGPS

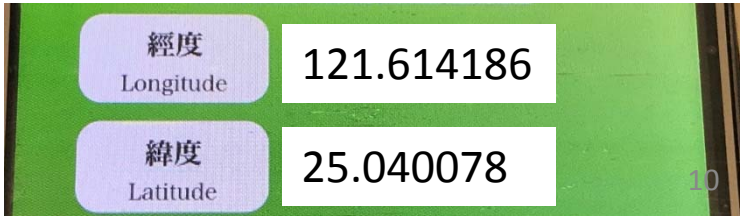
How to get GPS info. from google map

- Open google map
- Move the mouse icon to place you want to known the GPS info. Click the right button of mouse





Get the GPS info from google map



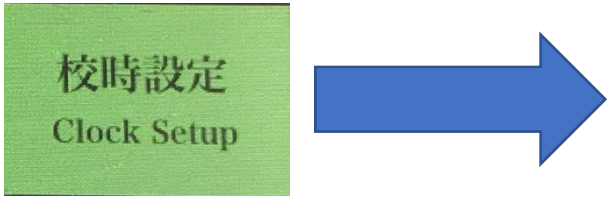
Configure AS-Lung: Clock setup

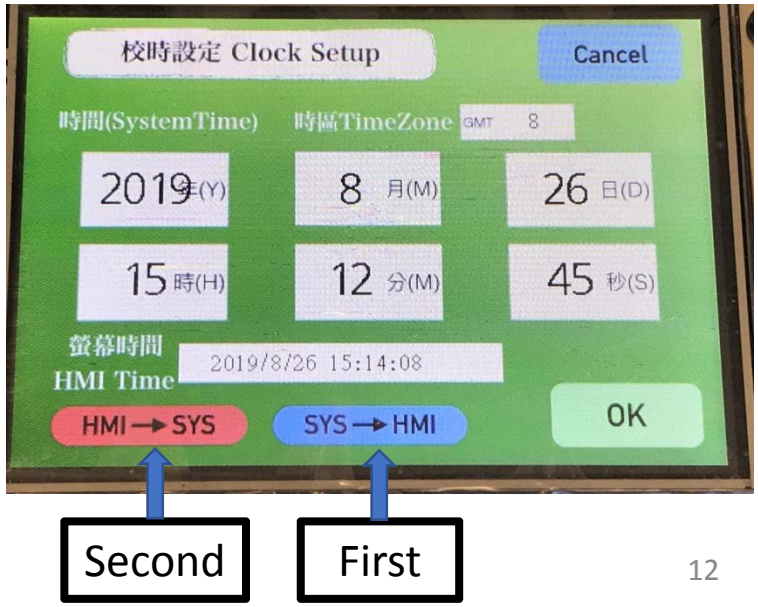
- There are three ways to set system time (1) manual, (2) via LCD monitor or (3) Get NTP time
  - (1) Manual setting：input the date, time, and time zone into the input box and clock “OK” to set system time

Configure AS-Lung: Clock setup

- There are three ways to set system time (1) manual, (2) via LCD monitor or (3) Get NTP time
  - (2) First click the blue icon (SYS->HMI) to get the system time. Second, connect to another device and click the red icon (HMI->SYS) to set system time

Please make sure that time of LCD monitor has been calibrated before use.





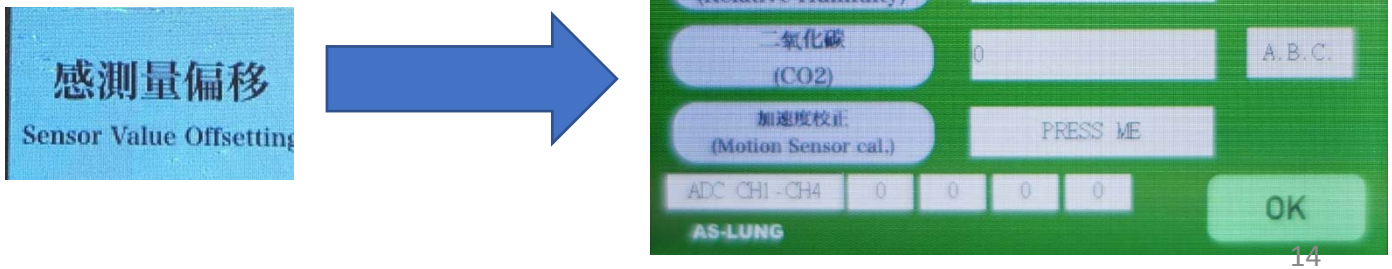
SYS→HMI: device time ➔LCD
HMI→SYS: LCD time ➔device

Configure AS-Lung: Sensor Selection

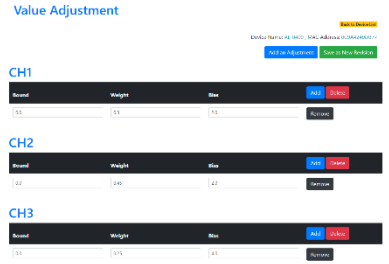
- For portable version:CO2 sensor is optional
- For outdoor version:CO2 sensor is optional and Motion Sensor is not available

Configure AS-Lung: Sensor value offset

- temperature/relative humidity
  - Adjustment the offset value of temperature and relative humidity sensors
  - Ex: zero-adjustment of temperature is 5, please input “-5”
- CO2
  - PLEASE make sure the sensor in the fresh air value is 405 ppm CO2
- motion sensor
  - click “PRESS ME”, the motion sensor will be leveled



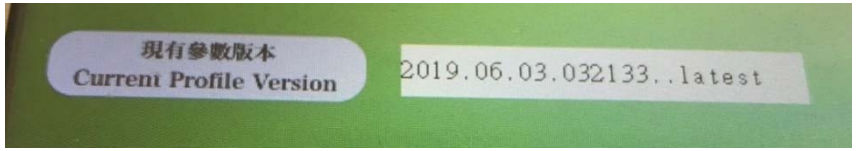
Upgrade function: Get calibrate data



Get calibration factor

Enter a new calibration factor in the data server

From:
hood, chamber, ambient or others



Update calibration factor to device via network

Version control:
version number is unique

SD card

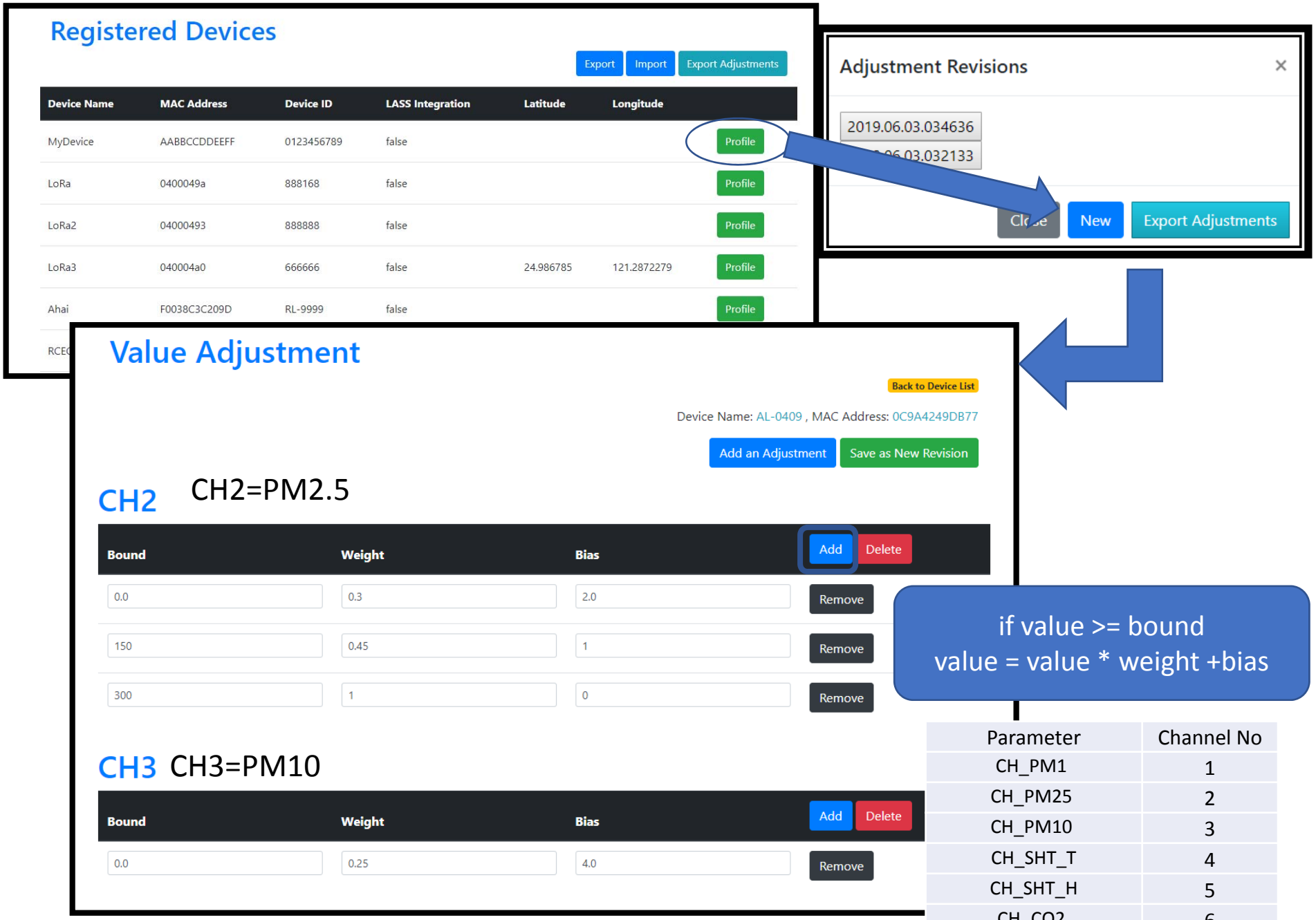
1. Raw data
2. Calibrated data

Local time in SD card

Data server

1. Raw data
2. Calibrated data

UTC time in data server



Parameter	Channel No
CH_PM1	1
CH_PM25	2
CH_PM10	3
CH_SHT_T	4
CH_SHT_H	5
CH_CO2	6

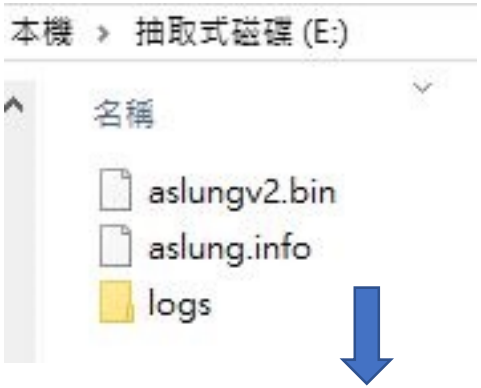
Get data from SD card

- Remove SD card from the main board and connect SD card to PC or notebook
- Data file is in the folder of logs

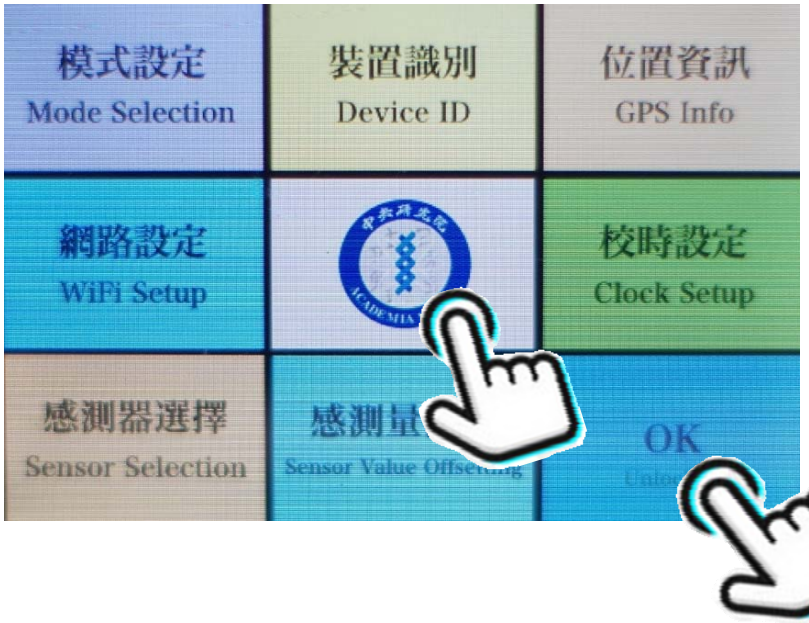
date	time	sht_t	sht_h	pm1	pm25	pm10	co2
2017-07-01	20:20:30	26.2	66.4	11	15	17	1892
2017-07-01	21:18:45	24.3	63.4	9	15	15	2201
2017-07-01	21:19:00	24.3	63.4	10	16	16	2195
2017-07-01	21:19:15	24.3	63.3	7	11	12	2192
2017-07-01	21:19:30	24.3	63.4	9	14	14	2195
2017-07-01	21:19:45	24.4	63.3	9	13	13	2196
2017-07-01	21:20:00	24.4	63.2	8	13	14	2197
2017-07-01	21:20:15	24.5	63	9	12	13	2197
2017-07-01	21:20:30	24.6	62.8	9	12	13	2199
2017-07-01	21:20:45	24.6	62.5	9	13	15	2201

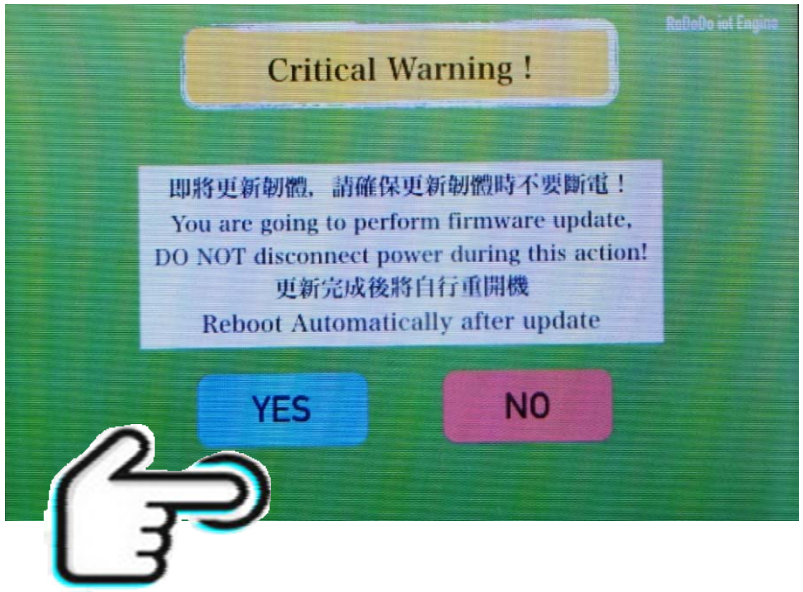
All the files are the same in the same day, please rename it when copy data from SD card.

Framework Upgrade



- With update firmware is copied to your root directory of SD cared.
- Press logo exactly 3 times, and then press OK.
- When you see this page, just press YES.





Reboot automatically after update

Notes of instrument setup -outdoor

- good ventilation
- sensors should be 50 cm far away from the wall
- sensors should be far away from air-conditioner
- sensors should be 180-200cm height from the ground
- Connect battery to AS-Lung-O, make sure the positive and negative positions are correct
- With 1 min log interval, battery capacity of 28000 mAh can support at least 250 hours (about 10 days) monitoring.
- We suggest renew battery per week, if solar power is not work.

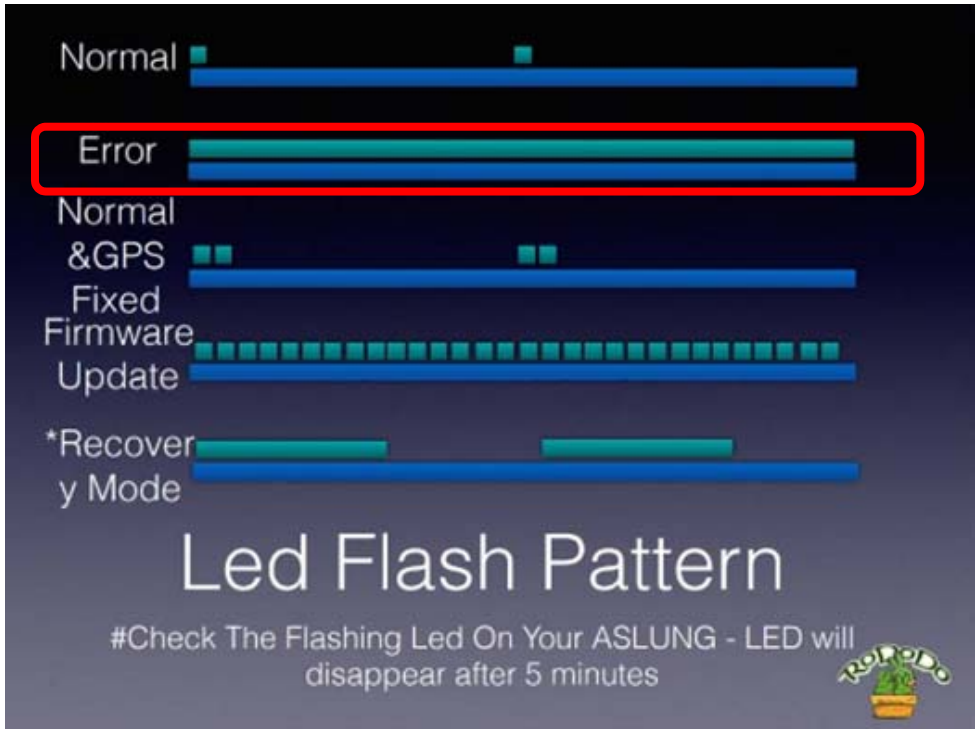
Notes of AS-Lung-P monitoring

- Keep inlet clean
- After system check, remove power and LCD then plugin power. Data will save in SD card. If not do so, data will not save in SD card.
- Battery capacity of 10050 mAh can support at least 48 hours monitoring.
- If you do not want to record the track, remove GPS sensor from AS-Lung-P and DONOT select RealGPS

Notes of AS-Lung-P monitoring

- LED flash pattern

Lighting

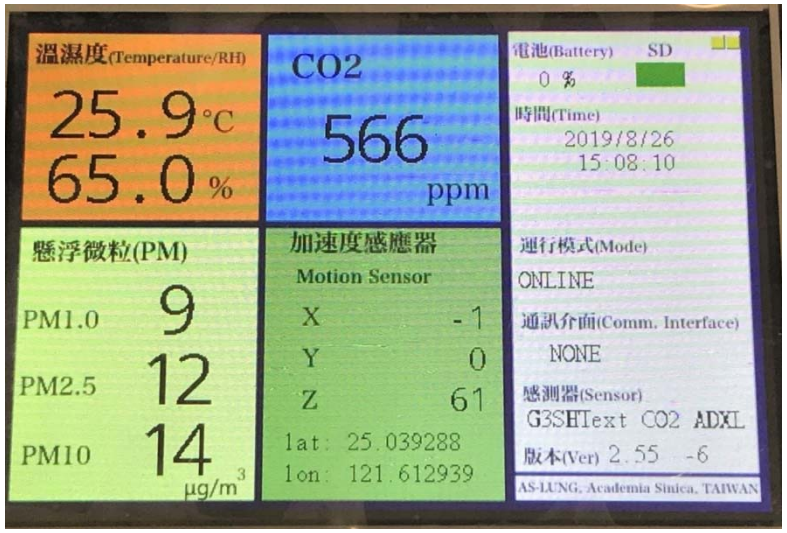


LCD release Note

Please press release button to disconnect the HMI from AS-Lung

Notes of instrument startup

- Connect LCD to AS-Lung
- Connect power
- Check the list:
  - Sensors: work
  - Network: if transmit data to server
  - SD card: green light
  - Time: local time
  - Mode: log interval
  - Comm. Interface: NONE, 3G/4G or WiFi
- Remove power and LCD
- Re-connect power



Notes of download data from SD card

- Check the power capacity of battery
- Remove battery and SD card
- Copy data from SD card
- Check data size
- Reinstall SD card and battery
- Check LED flash is NORMAL