A67Q-W / A67Q-L

Wireless Sensor Series

Power supply	USB $5V_{DC}$
Protocols	AS923 / EU868 / 802.11b/g/n
Frequency bands	923MHz / 868MHz / 2.4GHz

Features

- 3.7” FSTN with color-changing backlight for instant visual alert
  - ❖ Red for severe health warning. NO_2 ≥200ppb / CO_2 ≥2000ppm / TVOC ≥1mg/m^3
- Touch keys **x5**
- 868/915MHz transceiver module supports LoRAWAN® long range wireless protocol
- Color and texture: gloss white. UV oxidant-retardant treatment [Optional]
- Desk-stand and wall-mount bracket included
- USB Type-C adapter included
- Temperature and IAQ log viewable and retrievable online
- Thin profile. 21mm in thickness

IAQ Parameters

Temperature measuring range:	32 ~ 104 °F / 0 ~ 40 °C
Temperature accuracy:	±1°F / 0.5°C (typ. at 25°C)
Temperature resolution:	1°F / 0.1°C
Humidity measuring range:	0 ~ 100% R.H. non-condensing
Humidity accuracy:	±5% (typ. at 25°C, 30 ~ 80% RH)
Humidity resolution:	1% RH
CO_2 sensor type:	NDIR
CO_2 measuring range:	400 ~ 4999 ppm
CO_2 accuracy:	±70ppm / ±5% of measured value
CO_2 resolution:	1ppm
Dust particle measuring range:	0 ~ 5999 µg/m^3
Detectable particle size:	PM2.5; 0.3 ~ 10 µm
Dust particle accuracy:	±10% (typ. at 25°C, 40% RH)
Dust particle resolution:	1 µg/m^3
NO_2 range:	5 ~ 500 ppb
NO_2 accuracy:	±20ppb at 0 ~ 100ppb
NO_2 resolution:	1 ppb
TVOC range:	0 ~ 2,000 ppb i.e. 0 ~ 2,000 µg/m^3
TVOC resolution:	±1 ppb / ±1 µg/m^3

Model Selector

A67-T-W	✓	✓					✓	
A67-H-W	✓	✓					✓	
A67-C-W	✓		✓				✓	
A67-N-W	✓			✓			✓	
A67-Q-W	✓				✓		✓	
A67-V-W	✓					✓	✓	
A67-T-L	✓	✓						✓
A67-H-L	✓	✓						✓
A67-C-L	✓		✓					✓
A67-N-L	✓			✓				✓
A67-Q-L	✓				✓			✓
A67-V-L	✓					✓		✓

868/915MHz transceiver module supports LoRAWAN® long range wireless protocol

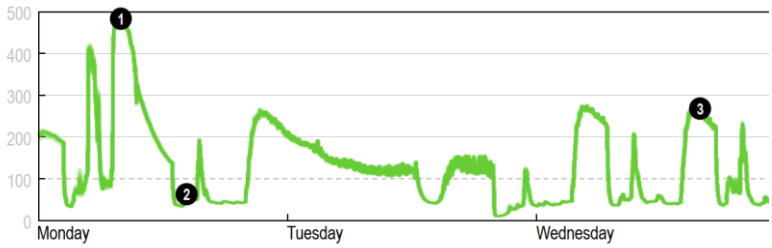
CO_2 | NDIR vs. MOX

- advantage of MOX over NDIR is its ability to sense odors. Disadvantage is drift.

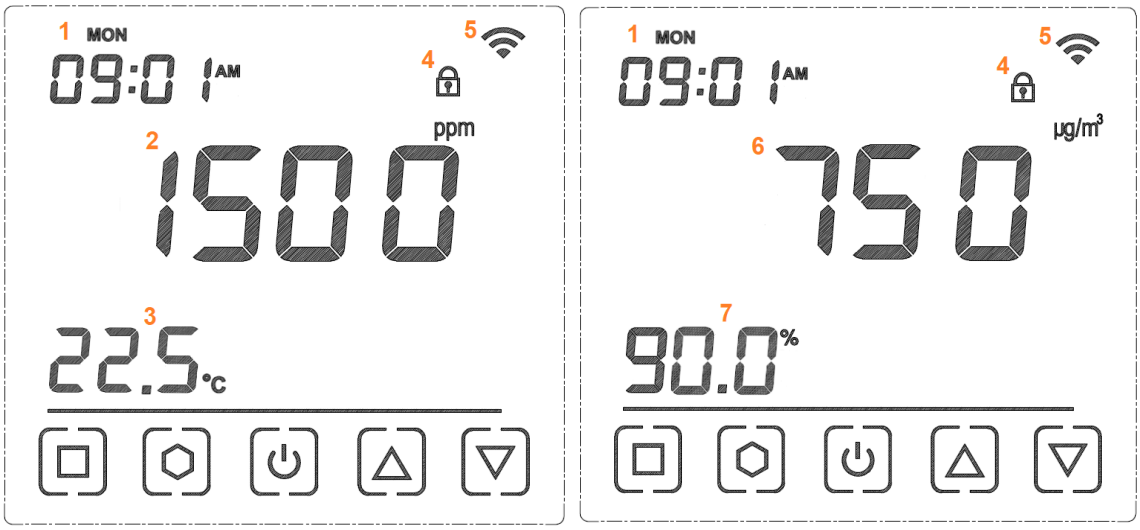
	Range	Accuracy	Lifetime
NDIR	400 ~ 5,000ppm	±50 ppm ±3% of reading @ 25°C	5 years minimum
MOX	400 ~ 5,000ppm	>10% of reading @25°C	2 years

NO_2 Index in A67-N

- The output of nitrogen dioxide measurement is in a linear scale of 1 to 500 index points.
- Example below shows VOC captured in a span of 3 weekdays.
- Label 1 – highly concentrated and air purification is required.
- Label 2 – the air is in good condition.
- Label 3 means moderately polluted. Air purification is recommended.



LCD Icons and Touch Keys

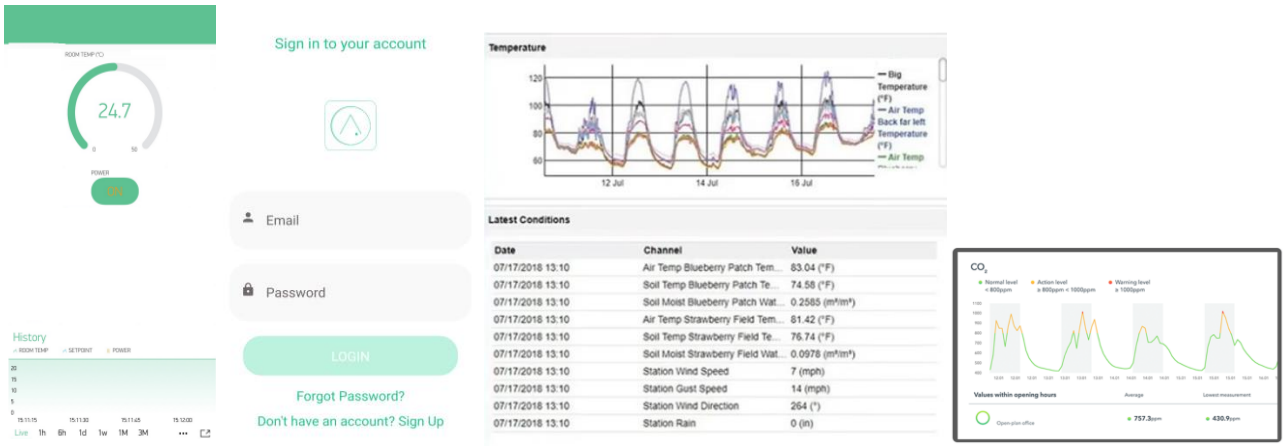


Keys	Function
	Short press: change viewing mode Long hold: Internal menu
	Reserved
	Long hold: On/Off
	Page Up
	Page Down

#	Indication
1	Real-time clock and date assuming device registered at gateway / cloud
2	Measurement in ppm representation
3	Ambient temperature
4	Keypad lock
5	connectivity e.g. gateway / App
6	Measurement in µg/m^3 representation
7	Humidity

Data Visualization

- Dashboard, time charts on the Web Portal and
- Data retrievable in CSV format from Web Portal
- IAQ conditions in multiple locations monitored simultaneously
- Max of 50 loggers can be registered per user account



Payload format in LoRaWAN packets

A67-T-L	Uplink | port 10		
Byte	Data	Content	Range
0	data.RoomTemperature (High Byte)	Room Temperature(°C) = D_Room_Temperature/10	0 ~ 400
1	data.RoomTemperature (Low Byte)	Room Temperature(°C) = D_Room_Temperature/10	0 ~ 400
2	data.threshold (*)	Temperature change: 0.2°C ~ 5.0°C	2 ~ 50
Downlink | port 90			
0	data.TempSensor	Internal (0) / External (1)	0 / 1

(*) D_update_threshold determines the required minimum change in ambient room temp to trigger a send event. This parameter is limited by another named, “sending interval”, hardcoded 15 seconds. e.g. if change in temp > 0.2°C, sends uplink immediately

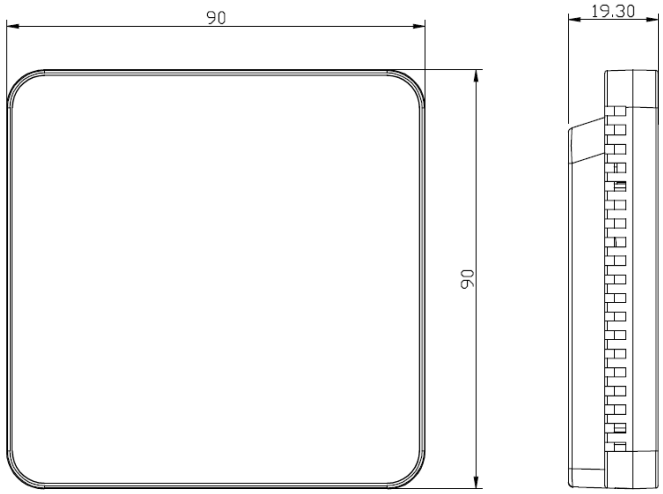
A67-H-L	Uplink | port 10		
Byte	Data	Content	Range
0	data.RelativeHumidity (High Byte)	Relative Humidity(%) = D_humid/10	0 ~ 1000
1	data.RelativeHumidity (Low Byte)	Relative Humidity(%) = D_humid/10	0 ~ 1000

A67-C-L	Uplink | port 10		
Byte	Data	Content	Range
0	Data.cooSensor	Off (0) / On (1)	0 / 1
1	data.coo	Carbon Dioxide level in ppm	400 ~ 1400

A67-N-L	Uplink | port 10		
Byte	Data	Content	Range
0	Data.nooSensor	Off (0) / On (1)	0 / 1
1	data.noo	Nitrogen Dioxide index points	1 ~ 500

A67-Q-L	Uplink | port 10		
Byte	Data	Content	Range
0	Data.pmSensor	Off (0) / On (1)	0 / 1
1	data.pm	Particulate Matter 2.5µm in µg/m^3	1 ~ 100

Product Appearance and Dimensions



Technical Specifications

- IP Rating: 21
- Power source: 5V USB adapter
- Radio frequency: 2.4GHz / 868MHz / 923MHz
- Antenna type: on-board
- Sample interval: 5 / 10 / 15 / 30 / 60 mins selectable
- Embedded data storage: 5,000 data points
- CO_2 sensor warm-up time: 15 seconds
- CO_2 sensor calibration: auto / manual to 400 ppm