Airlab: Product Information

The Airlab has two main functions; measuring environmental conditions and communication.

The Airlab measures environmental metrics such as ambient temperature, humidity, sound levels, as well as air quality parameters including CO2, TVOC levels and PM levels.

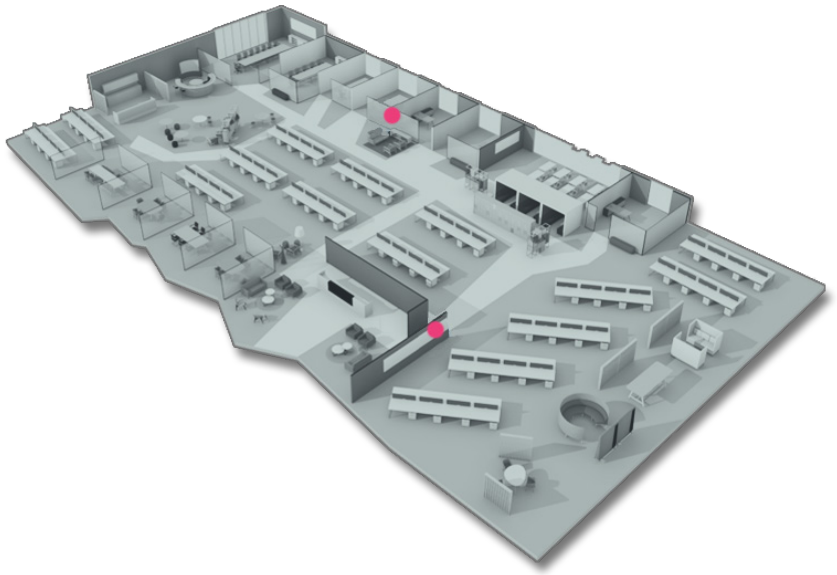
It also acts as the communications gateway between Pebble sensors and the cloud-based Solutions Hub. Data collected via Pebble occupancy sensors is relayed to the Airlab via a closed Bluetooth mesh network. This information as well as the environmental data collected by the Airlab itself is streamed to the Solutions Hub at pre-determined intervals.

Good indoor air quality enhances occupant health, comfort and workplace productivity. Organizations, more than ever, are interested in ensuring that indoor environments are healthy and that the risk of potential virus survivability and spread is minimized.

Dimensions:
125mm x 93mm x 27mm

Weight:
104,7g

Placement Example:



Measures:

- CO2 levels
- TVOC levels
- Temperature
- Humidity
- Sound levels
- Particle Matter
  - PM 10
  - PM 4
  - PM 2.5
  - PM 1

Power and Communication:

Information is streamed by the Airlab directly to the cloud-based Solutions Hub at pre-determined intervals. This transmission happens securely and seamlessly anywhere in the world via GSM using MQTT communications protocol. The secure independent connectivity means no other gateway function, or integration with client network is needed.

No on-site configuration is required, the transmission will happen automatically when the device is powered. Airlab only need to be plugged in using the supplied 5-volt power supply. Airlab will immediately start measuring and sending data to the cloud.

Airlab: Specifications

Operating Voltage		4-5V
Operating current		100mA-2.1A
Power Supply		5V micro USB
Operating Temperature		-5C-50C
Storage Temperature		-20C-85C
General Sensor Operation:		
User input		Single push button
Microphone sensitivity		>40dBA
Temperature sensor range		-10C-85C
Humidity sensor range		0-80%
CO2 sensor range		400ppm up to 32768ppm
VOC sensor range		0ppb up to 32768ppb
Lux sensor range		0.01-64k lux
Battery power measurement		N/A
Occupancy/People counting		N/A
Mass concentration size range :	PM1.0	0.3 – 1.0 µm
	PM2.5	0.3 – 2.5 µm
	PM4	0.3 – 4 µm
	PM10	0.3 – 10 µm
Number concentration range		0 – 3000/cm^3
Sensor output characteristics	PM2.5 mass concentration	Calibrated to TSI DustTrak™ DRX 8533 Ambient Mode
	Pm2.5 number concentration	Calibrated to TSI OPS 3330
Lifetime (at 24h/day operation)		>10 years
GSM Modem:		
GSM operating frequencies RX		EGSM900: 925-960MHz
		DCS1800: 1805-1880MHz
LTE Bands		1,3,5,7,8,20,38,40
GSM operating frequencies TX		EGSM900: 880-915MHz
		DCS1800: 1710-1785MHz
LTE Bands		1,3,5,7,8,20,38,40
GSM antenna		Ceramic dual band monopole antenna
Sim card		Standard size Sim card or on board chip SIM

Bluetooth low energy:	
BLE version	ver 4.1
RF frequency	2.4GHz
TX power	+4dBm
RX sensitivity	-88dBM
BLE Module FCC Compliance	Part 15
BLE Module certification	CE qualified
	FCC, IC modular approval certified
	TELEC
	BQE qualified
BLE antenna	Onboard chip antenna
Range	5-10m individual node range in BLE mesh non line of sight

Bluetooth low energy mesh:	
Provisioning	Devices added to a network are provisioned using proven security algorithms using 256-bit elliptic curves
	Provisioning and network layer based on Mesh profile v1.0
Communication	All messages in the network are encrypted with AES-128 CCM mode
Privacy	Privacy through obfuscation
Data protection	Protected against security attacks like Brute-force, Bit-Flipping, Eaves Dropping, Replay, Trashcan, Man in the middle and physical insecure device attacks