

General Information

Environmental Parameters

- Primary Pollutants: PM2.5, PM10, CO₂, Temperature, Relative Humidity, Atm. Pressure
- On Demand Pollutants: CO, SO₂, NO₂, O₃, Wind Speed, Noise

Measurement Interval

- The sampling interval varies by sensor. For instance, the PM sensor samples every 1 to 5 seconds, while gaseous pollutant sensors sample every 30 to 40 seconds.
- Device-to-server communication occurs every 30 seconds to 1 minute.

Power Supply

- Input Power: 85–264 VAC
- DC Power: 12 V, 3 A via external DC adapter
- Battery Backup: 3.7 V Li-ion, 5000 mAh

Product Dimensions

Parameter	Specification
Dimensions	160 × 250 × 90 mm
Material	ABS Plastic
Ingress Protection (IP Rating)	IP65 (Dust-tight & Water-resistant)
Weight	Up to 1 kg

Connectivity

- Device-to-cloud connectivity via Wi-Fi or GSM
- Supports integration via MQTT or REST API

Air Quality Monitoring Device – Specifications

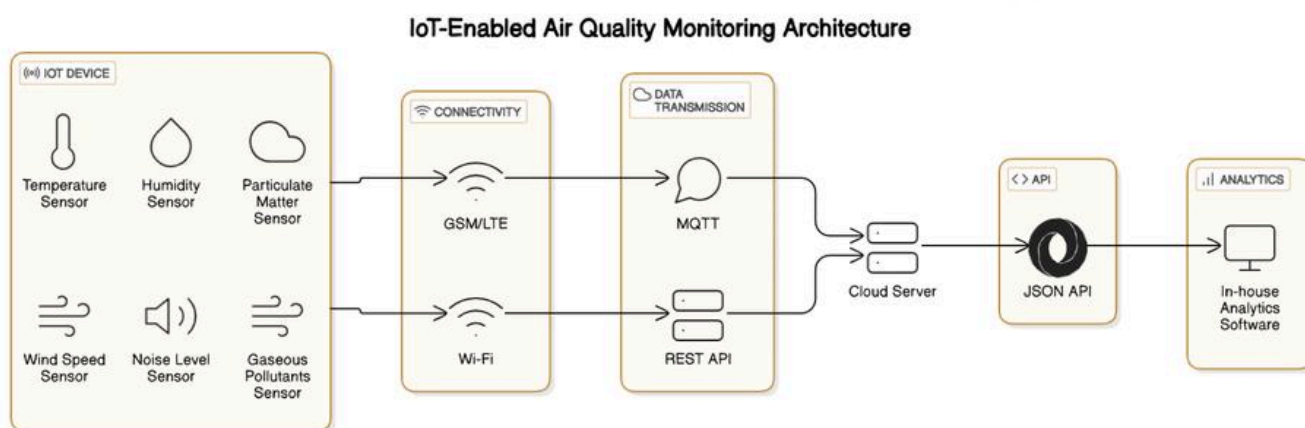
Parameter	Measurement Range	Accuracy	Resolution	Working Principle
Particulate Matter (PM1, PM2.5, PM10)	0 - 1000 $\mu\text{g}/\text{m}^3$	$\pm 10 \mu\text{g}/\text{m}^3$ or $\pm 10\%$	1 $\mu\text{g}/\text{m}^3$	Laser Scattering
Temperature	-40°C to +85°C	$\pm 1.0^\circ\text{C}$	0.01 °C	MEMS Sensor
Humidity	0% to 100% RH	$\pm 3\%$ RH (20-80% RH)	0.008% RH	MEMS Sensor
Atmospheric Pressure	300-1100 hPa	± 1 hPa	0.18 Pa	MEMS Sensor
Carbon Dioxide (CO ₂)	0 - 5000 ppm	± 50 ppm or $\pm 3\%$	1 ppm	photoacoustic NDIR
Secondary Pollutants (Available OnDemand)				
Sulfur Dioxide (SO ₂) (Optional)	0 - 5 ppm	$\pm 5\%$	0.01 ppm	Electrochemical
Nitrogen Dioxide (NO ₂) (Optional)	0 - 5 ppm	$\pm 5\%$	0.01 ppm	Electrochemical
Carbon Monoxide (CO) (Optional)	0 - 1000 ppm	$\pm 3\%$	0.1 ppm	Electrochemical
Ozone (O ₃) (Optional)	0 - 5ppm	$\pm 5\%$	0.01 ppm	Electrochemical
Wind Speed	0 - 40 m/s	± 0.5 m/s	0.01 m/s	Ultrasonic
Wind Direction	0° - 360°	$\pm 1^\circ$	1°	Ultrasonic
Rainfall	0 - 200 mm/hr	$\pm 5\%$	0.1 mm	Optical Sensor
Noise	30 - 130 dB	± 1.5 dB	0.1 dB	MEMS Microphone

Visual Overview of the Air Quality Monitoring Device



Device-to-Cloud Connectivity

Our IoT-enabled Air Quality Monitor transmits real-time environmental data to the cloud via GSM/LTE or Wi-Fi. Data is securely transmitted using MQTT or REST APIs, enabling seamless third-party integrations for analytics and remote monitoring.

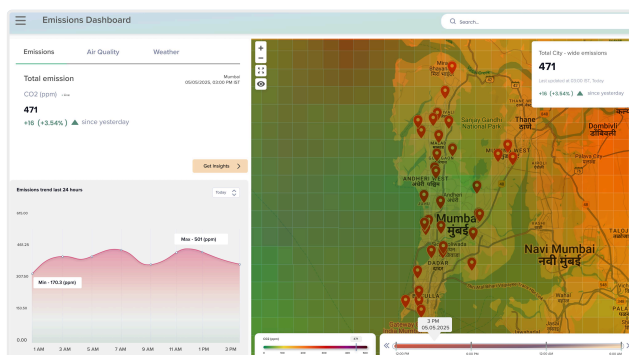
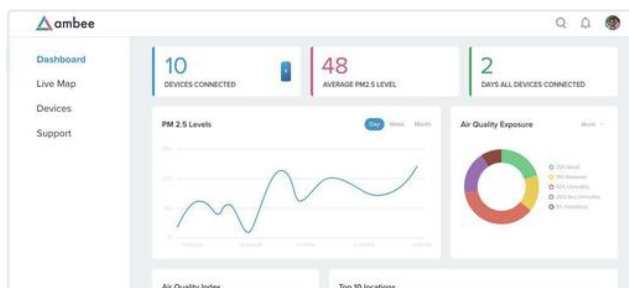


Example JSON Data Structure

```

{
  "data": [ {
    "devId": "B8:D6:1A:0F:95:5C",
    "temp": 38.92,
    "hum": 28.6,
    "pm2d5": 41,
    "pm10": 49,
    "pm1d0": 26,
    "NO2": 160.88,
    "ws": 0.75,
    "wd": 132,
    "lat": "22.693796",
    "lng": "75.830813",
    "bv": 0.0,
    "ts": "25/02/18 07:18:59",
    "ms": 0,
    "us": 0
  } ]
}
  
```

Dashboard Snapshot



Device-to-Cloud Connectivity

Feature	Description
Primary Sensors	PM2.5, PM10, CO ₂ , Temp, RH, Pressure
Optional Add-ons	SO ₂ , NO ₂ , CO, O ₃ , Wind, Noise
Connectivity	Wi-Fi / GSM, MQTT & REST APIs
Power Options	85-264 VAC or 12V DC, 5000 mAh battery
Data Sync	Every 30s to 15 min (Configurable via SMS)
Enclosure	IP65, ABS Plastic, 160×250×90 mm
Accuracy	CO ₂ ±50 ppm / PMx ±10 µg/m ³ / Wind ±0.5 m/s
Offline Datalogging	SD Card storage for backup during outages
Remote Diagnostics	Device health checks and OTA updates
Calibration Support	Manual & remote calibration available

Real-Time Sensor Coverage Map

