# **MOT-100**

### Mobile Air Quality Monitoring Device

- Multi-sensing solution for monitoring urban pollutants



#### Features

- LTE compliant, Upload data every 5 sec.
- Integrated with calibrated and compensated PM2.5, TVOC and Temp/RH
- Optional multi-sensing solution, such as CO, NO<sub>2</sub>, O<sub>3</sub>,
  SO<sub>2</sub>, NH<sub>3</sub>, H<sub>2</sub>S
- Multiple power input 100~240VAC/ 12~24VDC
- Robust shell & water-resistant suits for outdoor usage
- Self-priming system provide stable air intake while moving

MOT-100 is a vehicle roof-mounted mobile device designed to trace traffic pollutants and urban air quality. With calibrated and compensated PM2.5, TVOC and Temp./RH, and optional multi-sensing solution integration, such as CO, NO<sub>2</sub>, O<sub>3</sub>, SO<sub>2</sub>, NH<sub>3</sub>, the data is ready to use.

By using 4G LTE communications, the device continuously upload data every 5 seconds, which enables the data to be analyzed in real-time.

Last but not least, the device is managed and maintained by the smart remote management system.

It is a simple and perfect solution to identify the pollution hot spots in the city.

#### **RF Specifications**

Model name	MOT-100			
Wireless	LTE			
Standard/ Protocol	Up to non-CA CAT1 with 1.4 to 20 MHz RF bandwidth			
Frequency	FDD-LTE	WCDMA	GSM	
	B1/B3/B7/B8/B20/B28A	B1/ B8	B3/ B8	
Sensitivity	B1: -101.5dBm (10M) B3: -101.5dBm (10M) B7: -99.5dBm (10M) B8: -101dBm (10M) B20: -102.5dBm (10M) B28: -102dBm (10M)	B1: -110dBm B8: -110.5dBm	-109dBm	
Data rate	Max 10 Mbps(DL) Max 5 Mbps (UL)	Max 384 Kbps (DL) Max 384 Kbps (UL)	Max 107 Kbps (DL) Max 85.6 Kbps (UL)	



## Sensor Specifications

Sensor Operation	Principle	Range	Response time	Accuracy(at 25 $^\circ\!$	Repeatability	Long Term Output Drift	Resolution
PM2.5	OPC	0~1000 μg/m³	< 10 sec	±10 μg/m³/±10%	-	-	1 μg/ m³
tVOC	CMOS	0~60000ppb	-	-	-		
Temp. / RH	Band gap sensor/ Capacitive measurement	Temp: -40~+125℃ Humidity: 0~100 %RH	Temp: > 2sec. at τ63% Humidity:<8sec.at τ63%	Temperature: $\pm 1^{\circ}$ C Humidity: $\pm 5\%$ RH	Temp:±0.24°C Humidity:±0.25%RH	Temp: < 0.03℃/yr Humidity:<0.25%RH/yr	Temp:0.01 <sup>°</sup> C Humidity:0.01%RH

## **Optional Gas Sensor**

Sensor Operation	Principle	Range	Response time	Accuracy(at 25 $^\circ C$ )	Repeatability	Long Term Output Drift	Resolution
Carbon Monoxide (CO)	Electrochemical	0~20 ppm	< 30 sec. at τ90	±0.1 ppm in 7 ppm	< ±5% CO equivalent	±0.1 ppm/yr (zero drift)	0.01 ppm
Nitrogen Dioxide (NO2)	Electrochemical	0~2 ppm	< 80 sec. at τ90	±10 ppb in 100 ppb	< $\pm 5\%$ NO <sub>2</sub> equivalent	±20 ppb/yr (zero drift)	0.01 ppb
Ozone (O₃)	Electrochemical	0~1.5 ppm	< 80 sec. at τ90	±10 ppb in 100 ppb	< ±5% O₃ equivalent	±20 ppb/yr (zero drift)	0.01 ppb
Ammonia(NH₃)	Electrochemical	0~8 ppm	< 40 sec. at τ90	±0.5 ppm in 5 ppm	< $\pm 5\%$ NH <sub>3</sub> equivalent	< 20% /yr	0.01 ppb
Sulfur Dioxide(SO <sub>2</sub> )	Electrochemical	0~1 ppm	< 60 sec. at τ90	±15 ppb in 100 ppb	< $\pm 5\%$ SO <sub>2</sub> equivalent	±20 ppb/yr (zero drift)	0.01 ppb
Hydrogen Sulfide(H2s)	Electrochemical	0~7 ppm	< 60 sec. at τ90	±0.05 ppm in 5ppm	< $\pm 5\%$ H <sub>2</sub> S equivalent	±0.1ppm/yr (zero drift)	0.01 ppb



## **Operational Specifications**

System Operation		
<b>Operating Temperature</b>	-10~+55 °C	
Operating Humidity	15~85%RH, Non-condensing	
Storage temperature	-40~85℃.	
Warm-up time	≤ 1 min. (at full specs ≤ 15 minutes)	
Power supply	100~240VAC, 12~24VDC	
Power consumption	Average 3.5 W	
Installation	Vehicle roof install	
Dimension (cm)	150(L) x 250(W) x 100(H)	
Weight	2kg	

