

# GLOBALSAT WORLDCOM CORPORATION

## PRODUCT SPECIFICATIONS

**LoRaWAN™ Sensor Device**  
**MODEL: LS-113 (PM2.5)**

**Document Version: V1.0**



**GlobalSat WorldCom Corporation**  
16F., No. 186, Jian 1<sup>st</sup> Rd, Zhonghe Dist.,  
New Taipei City 23553, Taiwan  
Tel: 886.2.8226.3799/ Fax: 886.2.8226.3899  
[lora@globalsat.com.tw](mailto:lora@globalsat.com.tw)  
[www.globalsat.com.tw](http://www.globalsat.com.tw)

**USGlobalSat Incorporated**  
14740 Yorba Court Chino, CA 91710  
Tel: 888.323.8720 / Fax: 909.597.8532  
[sales@usglobalsat.com](mailto:sales@usglobalsat.com)  
[www.usglobalsat.com](http://www.usglobalsat.com)

## Introduction:

LS-113 series are designed to measure Particle, Temperature and Humidity by LoRa<sup>®</sup> long-range and low-power wireless connectivity. It is integrated LoRa<sup>®</sup> wireless technology, Laser dust (PM<sub>2.5</sub>) sensor knowhow and high-performance MCU solution for various IoT markets usage. With calibrated dust (PM<sub>2.5</sub>) sensor module and compensated Temperature/ Humidity sensor integration, the data is ready for use. It is perfect to detect the dust in the air, like air purifier, air conditioner and air monitor.

## Product Features:

- LoRaWAN<sup>™</sup> compliant
- High Receiver Sensitivity and long range solution
- Integrated with calibrated Dust Particles sensor
  - Range: 0-500 µg/m<sup>3</sup>
- Integrated with Compensated Temp/ RH sensor
- Wide range DC power-in, 8~24V /or Micro-USB DC power-in, 5V

## Specifications

Wireless	
LoRa <sup>®</sup> Module	LoRa Alliance <sup>™</sup> certified module.
Sensitivity	-132 dBm @ 980bps
Tx Power	Up to 100mW
Standard/ Protocol	Comply with LoRaWAN <sup>™</sup> protocol
LoRa <sup>®</sup> Antenna	External Omni Antenna 824~960 MHz 2dBi SMA Male connector
Frequency	865~868MHz (Model : LS-113E) 902~928MHz (Model : LS-113H)
Sensor Operation	
Sensing Element	Dust: laser light scattering principle Temperature & humidity: CMOS sensor
The unit of measurement	µg/m <sup>3</sup>
Response Time	Dust: < 10 sec Temperature: min. 3 sec. ; max. 30sec. at τ63% Humidity: < 8 sec. at τ63%
Accuracy (at 25°C)	Dust: µg/m <sup>3</sup> Temperature: ±0.3°C Humidity: ±3 %RH
Repeatability	Dust: ±10% @ 100~500 µg/m <sup>3</sup> , ±10µg/m <sup>3</sup> @ 0~100µg/m <sup>3</sup> Temperature: ±0.1°C Humidity: ±0.1 %RH
Zero Drift	Temperature: < 0.04 °C/yr Humidity: < 0.5 %RH/yr.
Measurement Range*	Dust: 0-500 µg/m <sup>3</sup> Temperature: -40 ~ +125°C Humidity: 0 ~ 95 %RH
System Operation	
Temperature	-10 ~ + 60 °C
Humidity	0 ~ 95%RH, Non-condensing
Storage Temperature	-10 ~ +60 °C.
Warm-up Time	≤ 1 min. (at full specs ≤ 15 minutes)
Signal Output	NA

## Specifications

Alarm Output	NA
Power Supply	DC 8~24V or Micro-USB DC 5V
Power Consumption	TBD
Installation	Wall-mount
Dimension (mm)	Wall-mount: 113.57(H) x 80(W) x 28.79(D) mm
Weight	129 ± 2 g
Case Material	ABS
<b>Accessory</b>	
Standard	LoRa <sup>®</sup> Antenna (External Omni Antenna) x 1
Optional	USB Adaptor Cable (USB to UART)