

ES105M

Outdoor Multiple Air Sensor

The ES105M series is an intergraded outdoor sensor unit for multiple gas sensors. The monitored data is output through RS-485 interface by Modbus protocol. The ES105M sensor unit accepts 10~30Vdc power input voltage and is protected by the IP65 grade Anti-U/V lightweight ABS louver radiation shield. With the optional NBloT/WiFi gateway WR222 or LoRa end node LC144, the data can be monitor on the cloud platform.



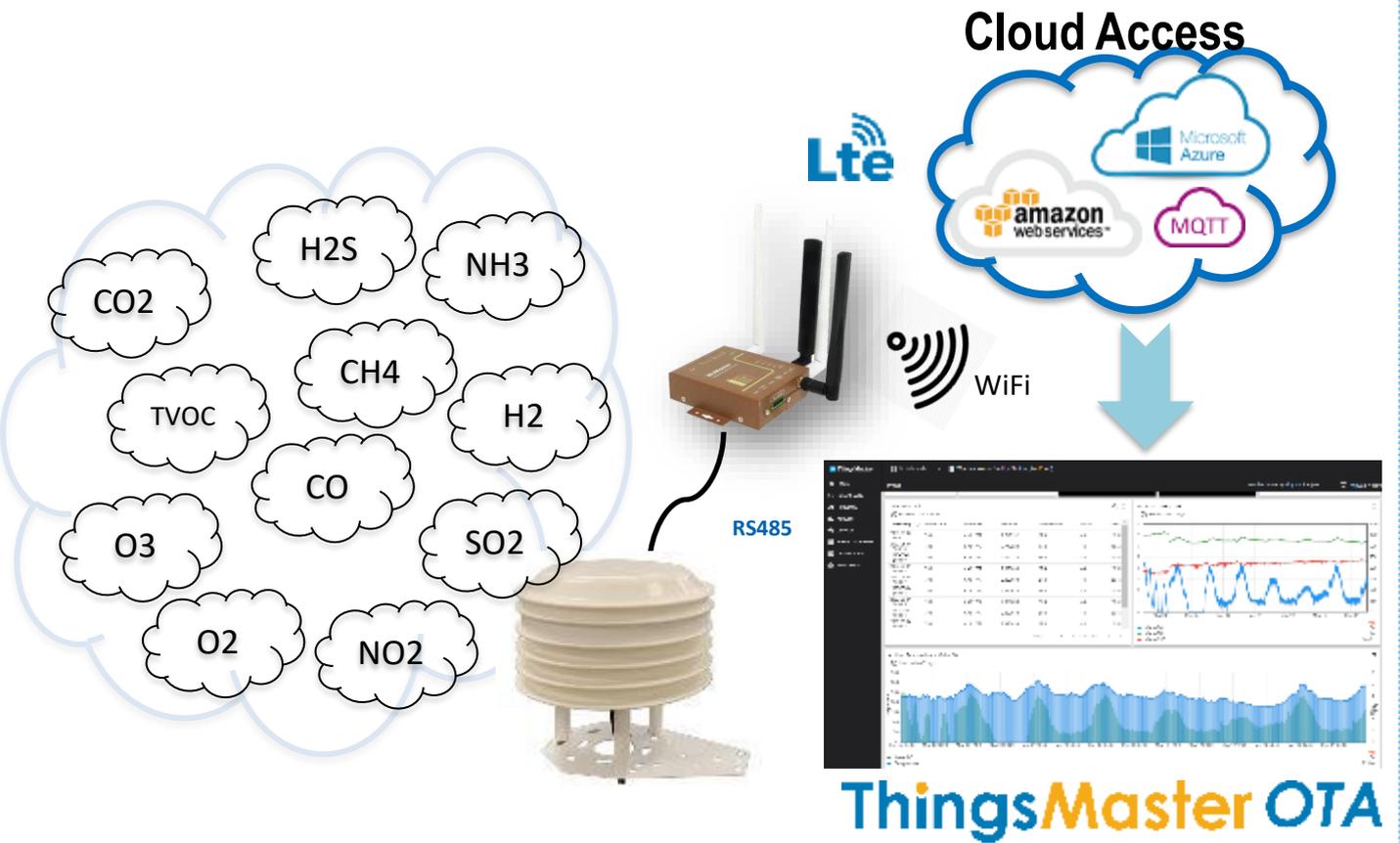
Features & Benefits

- **High Integrated Monitoring**
 - Intergraded multiple sensors
 - Central management by sharing a signal output
 - Support Industrial Modbus RTU protocol, 2-Wires RS485-A/-B
- **Outdoor Protective Enclosure**
 - Prevent direct ultraviolet radiation to the sensors
 - Avoid rapid aging of sensors under harsh environmental conditions such as strong winds, rain, and snow
 - The sensor parts are ventilated for truly sensing the changes in external detection parameters
- **Flexible Design**
 - Customized Shutter Height
 - Single or multiple parameters both can use small shutter, small size, light weight and easy to install
 - Customized Monitoring parameters
 - Each parameter is independent and high sensitivity, users can freely integrate monitoring parameters
- **Work with IoT Cloud Platform - ThingsMasterOTA**
 - Real-time online monitoring, analysis, reporting
 - Remote cloud security and visual management

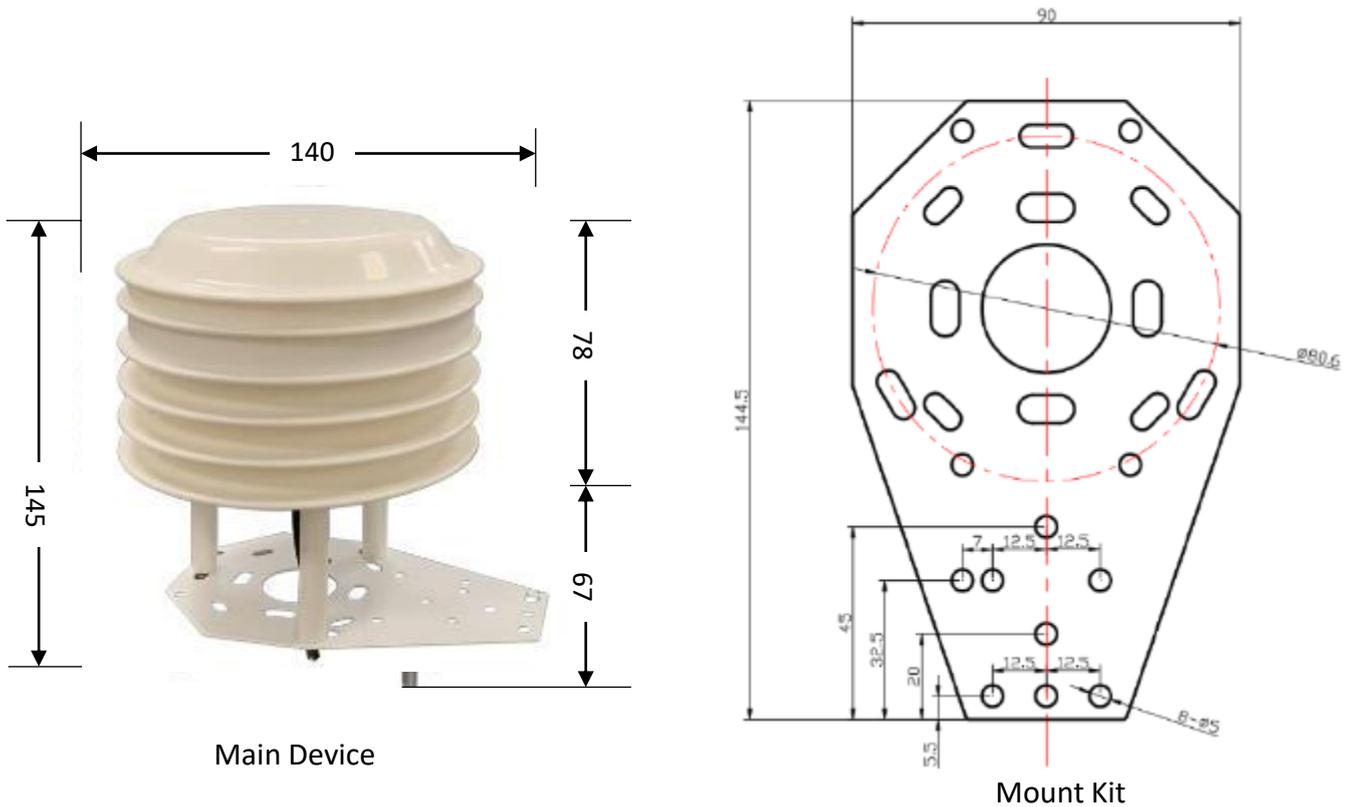




Application



Dimensions



(mm)

A: TVOC (Max.3 x A type)		
Measuring Range	0~60000 ppb (0~60 ppm)	1 ppm=1000 ppb
Resolution	1 ppb	
Accuracy	(±8% Full Scale) ±125 ppb	
A: CH2O(Max.3 x A type)		
Measuring Range	0~5 ppm	
Resolution	0.01 ppm	
Accuracy	±5% Full Scale	
A: O3(Max.3 x A type)		
Measuring Range	0~10 ppm	
Resolution	0.01 ppm	
Accuracy	±6% Full Scale	
B: O2(Max.2 x B type)		
Measuring Range	0~25%Vol	
Resolution	0.1%Vol	
Accuracy	±2% Full Scale	
B: H2S(Max.2 x B type)		
Measuring Range	0~100 ppm	
Resolution	1 ppm	
Accuracy	±3% Full Scale	
B: CH4(Max.2 x B type)		
Measuring Range	0~100% LEL	
Resolution	1% LEL	
Accuracy	±5% Full Scale	
B: CO(Max.2 x B type)		
Measuring Range	0~1000 ppm	
Resolution	1 ppm	
Accuracy	±3% Full Scale	
B: NO2(Max.2 x B type)		
Measuring Range	0~20 ppm	
Resolution	0.1 ppm	
Accuracy	±3% Full Scale	
B: SO2(Max.2 x B type)		
Measuring Range	0~20 ppm	
Resolution	0.1 ppm	
Accuracy	±3% Full Scale	
B: H2(Max.2 x B type)		
Measuring Range	0~1000 ppm	
Resolution	1 ppm	
Accuracy	±3% Full Scale	
B: NH3(Max.2 x B type)		
Measuring Range	0~100 ppm	
Resolution	1 ppm	
Accuracy	±5% Full Scale	

System Parameters	
Power Range	DC 24V (Range 10~30V) , Power consumption 1.2W @ DC 24V
System Warm-Up Time	≥ 5 Minutes (Gas Sensor Pre-Heat Time)
Enclosure Material	Shelter Box, Plastic ABS, Anti-U/V, UL94 V0
Enclosure Protection	IP65 Protection Level
Enclosure Dimension	140mm (Diameter) x 114mm (High)
Communication	Modbus RTU protocol, 2-Wire RS-485-A/-B RS485 Modbus RTU Pulling & Waiting Time ≥ 200mS
Op. Temperature	-10 ~ 55°C, 0~95% Humidity, No Condensing

Modbus Register Information			
Parameters Function	Register Add. (HEX / DEC)	PLC Add. (Index Number)	Note
Device ID Storage Add.	07D0 H / 2000	2001	R/W , System Factory Default ID: 1
Serial Baud Rate Add.	07D1 H/ 2001	2002	R/W , Default: 2 (9600). 0(2400), 1(4800)
TVOC (ppm)	0007 H/ 7	8	R/O. Actual Value = Read Value / 1000
CH2O (ppm)	0009 H/ 9	10	R/O. Actual Value = Read Value / 100
O3 (ppm)	000A H/ 10	11	R/O. Actual Value = Read Value / 100
O2 (%Vol)	000B H/ 11	12	R/O. Actual Value = Read Value / 10
H2S (ppm)	000C H/ 12	13	R/O. Actual Value = Read Value
CH4 (%LEL)	000D H/ 13	14	R/O. Actual Value = Read Value
CO (ppm)	000E H/ 14	15	R/O. Actual Value = Read Value
NO2 (ppm)	000F H/ 15	16	R/O. Actual Value = Read Value / 10
SO2 (ppm)	0010 H/ 16	17	R/O. Actual Value = Read Value /10
H2 (ppm)	0011 H/ 17	18	R/O. Actual Value = Read Value
NH3 (ppm)	0012 H/ 18	19	R/O. Actual Value = Read Value
TVOC Calibrate	0057 H/ 87	88	R/W. Write measured value
CH2O Calibrate	0059 H/ 89	90	R/W. Write measured value x 100
O3 Calibrate	005A H/ 90	91	R/W. Write measured value x 100
O2 Calibrate	005B H/ 91	92	R/W. Write measured value x 10
H2S Calibrate	005C H/ 92	93	R/W. Write measured value
CH4 Calibrate	005D H/ 93	94	R/W. Write measured value
CO Calibrate	005E H/ 94	95	R/W. Write measured value
NO2 Calibrate	005F H/ 95	96	R/W. Write measured value x 10
SO2 Calibrate	0060 H/ 96	97	R/W. Write measured value x 10
H2 Calibrate	0061 H/ 97	98	R/W. Write measured value
NH3 Calibrate	0062 H/ 98	98	R/W. Write measured value

R/W: Read & Write, R/O: Read Only

Model	Description
ES105M-A1-A2-A3-B1-B2	Outdoor Multi Air Sensor RS485 Modbus, 10-30V Power, Max 3 x A type and 2 x B Type
A: TVOC	TVOC Sensor Module 0~60PPM for ES105M
A: CH2O	CH2O Sensor Module 0~5PPM for ES105M
A: O3	O3 Sensor Module 0~10PPM for ES105M
B: O2	O2 Sensor Module 0~25%Vol for ES105M
B: H2S	H2S Sensor Module 0~100PPM for ES105M
B: CH4	CH4 Sensor Module 0~100% LEL for ES105M
B: CO	CO Sensor Module 0~1000PPM for ES105M
B: NO2	NO2 Sensor Module 0~20PPM for ES105M
B: SO2	SO2 Sensor Module 0~20PPM for ES105M
B: H2	H2 Sensor Module 0~1000PPM for ES105M
B: NH3	NH3 Sensor Module 0~100PPM for ES105M
	Package List
	1 x Multiple Sensor Shelter Box
	1 x QIG