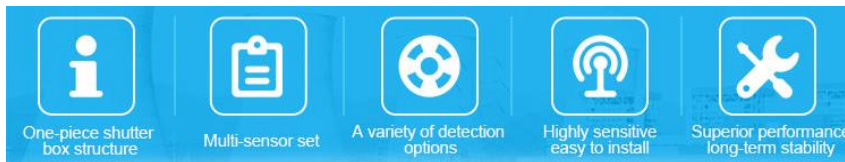# *Outdoor CO_2/PM2.5, Illumination, Temperature/Humidity, Noise, Atmospheric Pressure Sensor for Small Weather Station, Agriculture Applications*

## ES105-5

ES105-5 is an intergraded sensor box for all types of environmental monitoring including illumination, temperature, humidity, CO2/PM2.5 and Atmospheric Pressure for agriculture environments. Each parameter is independent and high sensitivity, users can freely integrate monitoring parameters. ES105-5 has the characteristics of high precision and good stability, which is suitable for various environmental monitoring.

One-piece shutter box structure	Multi-sensor set	A variety of detection options	Highly sensitive easy to install	Superior performance long-term stability

Modbus

Features & Benefits

- **Intergraded Device**
    - Intergraded multiple sensors
    - Central management by sharing a signal output
    - Support Industrial Modbus RTU protocol, RS485

- **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 - ThingsMaster**
    - Real-time online monitoring, analysis, reporting
    - Remote cloud security and visual management

⚙ Specifications
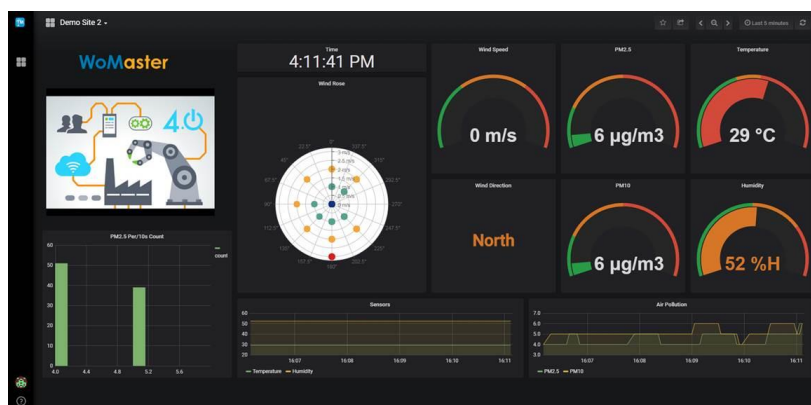
Temperature & humidity	
Measuring Range	Temperature -40-80°C
	Humidity 0%RH-100%RH
Output Signal	RS485 / (Modbus protocol)
Power Supply	10-30VDC
Accuracy	Temperauture±0.5°C(25°C)
	Humidity:±3%RH(5%RH-95RH, 25°C)
Long term stability	Temperature ≤0.1°C/year
	Humidity ≤1%RH/year
Response time	Temperature <15/S(1m/s wind speed)

Illumination	
Measuring Range	0-200000 Lux
Output Signal	RS485 / (Modbus protocol)
Power Supply	10-30VDC
Accuracy	±7%(25°C)
Long term stability	≤0.5°C/year
Response time	0.1 second

CO2 (Either CO2 or PM2.5/PM10)	
Measuring Range	0-5000ppm
Output Signal	RS485 / (Modbus protocol)
Power Supply	10-30VDC
Accuracy	±40ppm +3%FS(25°C)
Long term stability	≤30ppm/year
Response time	<10/S (1m/s wind speed)

PM2.5/PM10 (Either CO2 or PM2.5/PM10)	
Measuring Range	0~1000ug/m3
Resolution	1ug/m3
Output Signal	RS485 / (Modbus protocol)
Power Supply	10-30VDC
Accuracy	±10%
Response time	<90 seconds
Operation Temperature	Temperature -20-60°C Humidity:0%RH-80%RH

Atmospheric pressure	
Measuring Range	0-120Kpa
Output Signal	RS485 / (Modbus protocol)
Power Supply	10-30VDC
Accuracy	±1.5Kpa(25°C)
Long term stability	0.1Kpa/year
Response time	≤1 second
Operation Temperature	Temperature -20-60°C Humidity:0%RH-80%RH

Noise	
Measuring Range	30dB~120dB
Frequency Range	20Hz~12.5Hz
Output Signal	RS485 / (Modbus protocol)
Power Supply	10-30VDC
Accuracy	±0.5dB
Long term stability	<2%
Response time	≤3 seconds
Operation Temperature	Temperature -20-60°C Humidity:0%RH-80%RH

Ordering Information

Model	Description
ES105-5-	Outdoor Environment Basic Unit, IP. Output: RS485
-T/H	Temperature and Humidity sensor. Output: RS485
-CO2	CO2 sensor. Output: RS485
-PM	PM2.5 / PM10 sensor. Output: RS485
-N	Noise Sensor. Output: RS485
-P	Atmospheric Pressure Sensor. Output: RS485
-L	Illumination Sensor. Output: RS485
	Package List
	1 x Shutter
	1 x QIG