

Outdoor Environment Air Quality Inspection System

ES106

Outdoor Environment Air Quality Inspection System

ES106 is an intergraded device and designed for all types of environmental monitoring. It can be used to detect multiple parameters of temperature, humidity, PM2.5, PM10, wind speed and wind direction in the environment. Each parameter is independent and high sensitivity, users can freely integrate monitoring parameters. ES106 has the characteristics of high precision and good stability, which is suitable for various environmental monitoring.

The ES106 is equipped with a standard RS485 interface and supports the Modbus RTU protocol, which can be integrated into the Internet of Things and cloud interfaces, such as smart city boxes and NBloT routers WR222 or LoRa node LC144, for real-time monitoring and analysis via remote smartphones or computers.

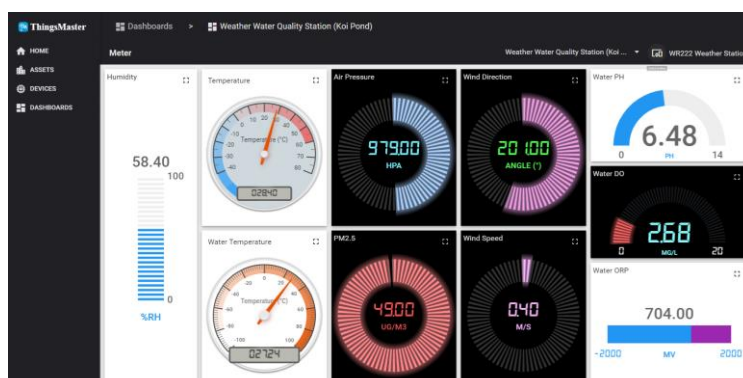


*Reference



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





Interfaces



ES104
Temperature, humidity, PM2.5, PM10



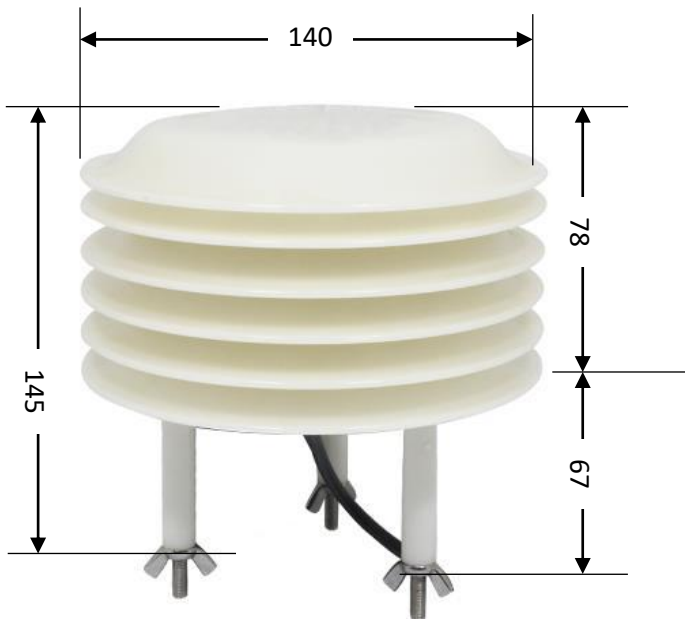
ES101-WS Wind Speed



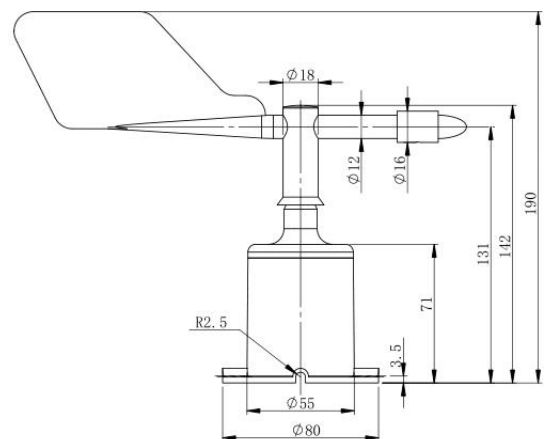
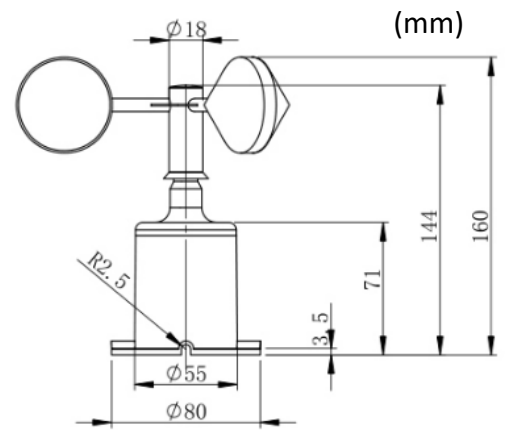
ES101-WD Wind Direction



Dimensions



Main Device



ES106 System Parameter

Power Input	12/24VDC (10~30VDC)
Communication	RS485 Modbus RTU
Warranty	1 year

ES106 Interface

Communication	2 wires Pin Define: Yellow (Gray): RS485+; Blue: RS485-
Power Input	2 wires Pin Define: Brown : V+; Black: V-

ES106 Inspection Parameter

Wind Speed	Detection Range: 0-70m/s Accuracy Level: ± 0.3 m/s Operation Temperature: -20~60°C Operation Humidity: 0-80% RH
Wind Direction	Detection Range: 0~359° Operation Temperature: -20~60°C Operation Humidity: 0-80% RH
Temperature	Detection Range: -40~120°C Accuracy Level: ± 0.5 °C (25°C)
Humidity	Detection Range: 0~99% RH Accuracy Level: ± 3 %RH(5%RH~95%RH,25°C)
PM2.5	Detection Range: 0-1000ug/m ³ Measurement: Laser Detection Accuracy Level: $< \pm 10$ % (25°C) Resolution: 1ug/m ³
PM10	Detection Range: 0-1000ug/m ³ Measurement: Laser Detection Accuracy Level: ± 10 % (25°C) Resolution:1ug/m ³

ES104 System Parameter

Power Input	12/24VDC (10~30VDC)
Communication	RS485 Modbus RTU
Warranty	1 year

ES104 Interface

Communication	2 wires Pin Define: Yellow (Gray): RS485+; Blue: RS485-
Power Input	2 wires Pin Define: Brown : V+; Black: V-

ES104 Inspection Parameter

Temperature	Detection Range: -40~120°C Accuracy Level: $\pm 0.5^{\circ}\text{C}$ (25°C)
Humidity	Detection Range: 0~99% RH Accuracy Level: $\pm 3\% \text{RH}$ (5%RH~95%RH,25°C)
PM2.5	Detection Range: 0-1000ug/m ³ Measurement: Laser Detection Accuracy Level: $< \pm 10\%$ (25°C) Resolution: 1ug/m ³
PM10	Detection Range: 0-1000ug/m ³ Measurement: Laser Detection Accuracy Level: $\pm 10\%$ (25°C) Resolution:1ug/m ³

ES101-WD/WS

Communication	2 wires Pin Define: Yellow : RS485+; Blue: RS485-
Power Input	2 wires Pin Define: Brown : V+; Black: V-
ES101-WS Wind Speed	Detection Range: 0-70m/s Accuracy Level: $\pm 0.3\text{m/s}$ Operation Temperature: -20~60°C Operation Humidity: 0-80% RH,No Condensing
ES101-WD Wind Direction	Detection Range: 0~359° Operation Temperature: -20~60°C Operation Humidity: 0-80% RH,No Condensing

Communication Protocol Basic Parameter

Protocol	Modbus RTU
Data bits	8 bit
Parity bit	No
Stop bit	1
Error Detecting Code	CRC
Baud Rate	2400bps/4800bps/9600bps, default setting is 9600bps

ES106 Modbus Register Information

Default slave ID	Parameters Function	Register Add. (HEX / DEC)	PLC Add. (Modbus Add.)	Note
	Device ID Storage Add.	07D0H / 2000	2001 (42001)	R/W , Range:1~254
	Serial Baud Rate Add.	07D1H / 2001	2002 (42002)	R/W , Default: 2 2(9600), 0(2400), 1(4800)
1	Humidity	01F4H / 500	501(40501)	R/O, Real Value = Read Value /10
1	Temperature	01F5H / 501	502(40502)	R/O, Real Value = Read Value /10
1	PM2.5	01F7H / 503	504(40504)	R/O, Real Value = Read Value
1	PM10	01F8H / 504	505 (40505)	R/O, Real Value = Read Value
2	Wind Speed	0000H / 000	001 (40001)	R/O , Real Value = Read Value / 10
3	Wind Direction	0001H / 001	002 (40002)	R/O , Integer angle value(0~359), Real Value = Read Value

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



Ordering Information

Model	Description
ES106	Outdoor Environment Air Quality Inspection System. Integrated embedded Hum., Temp., PM2.5, PM10 sensors, and external Wind Direction, Wind Speed sensors, Output: RS485
	Package List
	1 x ES104 (including cable/Bracket)
	1 x ES101-WD (including cable/Bracket)
	1 x ES101-WS (including cable/Bracket)
	1 x QIG
Model	Description
ES104	Outdoor Environment Air Quality Inspection System. Integrated embedded Hum., Temp., PM2.5, PM10 sensors, Output: RS485
	Package List
	1 x Shutter
	1 x QIG
	1 x Bracket
Model	Description
ES101-WD	Outdoor Wind Direction sensor, Output: RS485
ES101-WS	Outdoor Wind Speed sensor, Output: RS485
	Package List
	1 x Sensor (including cable)
	1 x QIG
	1 x Bracket



Optional Accessory

Accessories	
Crossbar-60	60cm metal for pole < 76mm diameter