



Municipality Weather Station System

The Municipality Weather Station System is an advanced solution designed to provide real-time monitoring of weather conditions across city areas, including streets and public spaces. This system tracks critical environmental parameters such as PM2.5 and PM10 levels, humidity, and temperature, ensuring accurate and timely data for city offices and relevant authorities.

Feature

Real-Time Data Monitoring: Provides up-to-the-minute information on air quality and weather conditions, enabling city officials to respond swiftly to environmental changes.

Web-Based Interface: Allows for easy access to live data through an intuitive web interface, enabling officials to monitor conditions from any location.

Comprehensive Data Logging: Records and stores sensor data for historical analysis, which helps with long-term planning, environmental studies, and compliance reporting.

Improved Public Safety: Monitors road conditions to assist in traffic management and hazard warnings, particularly during extreme weather events.

Air Quality Management: Tracks pollution levels (PM2.5 and PM10) to help reduce public health risks and support environmental policy enforcement.

Scalability: Easily integrates with additional sensors and future smart city initiatives, making it a flexible solution for growing urban needs.



Air Quality Summary with Warning Score

Air Quality Sensor	
Overall	Value
Area Temperature	35°C
Wind Direction (Km/h)	5
Pressure	1,011
Humidity	56%
O3 AQI	29
PM2.5	119
PM10	51

Recent Update
17:04:58

Sensor Tower 001N

Area Temperature	35°C
Wind Speed (Km/h)	24 Km/h
Wind Direction (Km/h)	354°
Air Pressure (hPa)	1015
Humidity	61%
O3	-
O3	-
CO2	-
NO2	-
PM 10	51
PM 2.5	119

Sensor Tower 002N

Area Temperature	36°C
Wind Speed (Km/h)	24 Km/h
Wind Direction (Km/h)	350°
Air Pressure (hPa)	1015
Humidity	60%
O3	-
O3	-
CO2	-
NO2	-
PM 10	51
PM 2.5	119

Real-time Sensor Data



UG67

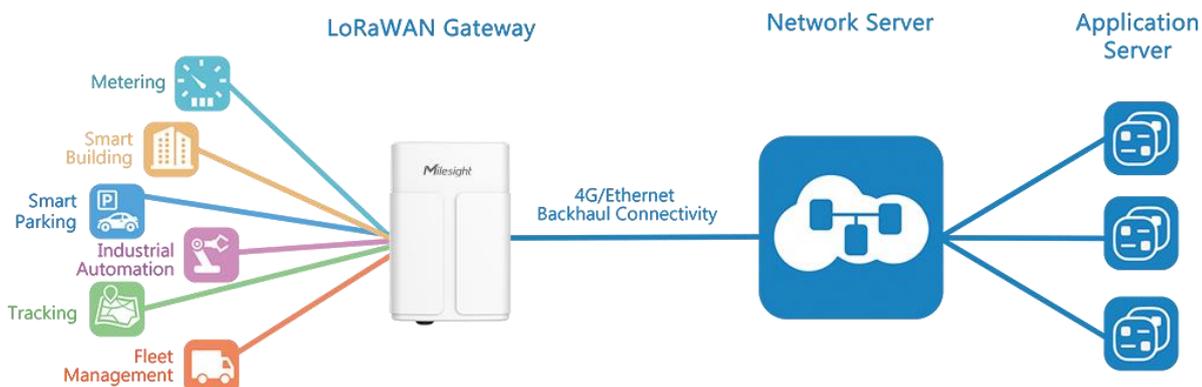
LoRaWAN[®] Gateway



UG67 is a robust 8-channel outdoor LoRaWAN[®] gateway. Adopting SX1302 LoRa chip and high-performance quad-core CPU, UG67 supports connection with more than 2000 nodes. UG67 has line of sight up to 15 km and IP67 waterproof case, which is ideally suited to smart agriculture, smart metering and many other outdoor applications.

UG67 supports not only multiple back-haul backups with Ethernet, Wi-Fi and cellular, but also has integrated mainstream network servers (such as TTI, ChirpStack, etc.) and built-in network server and Milesight IoT Cloud for easy deployment.

◆ Application Example



◆ Features

- Quad-core industrial processor with big memory
- Equip with SX1302 chip, handing a higher amount of traffic with lower consumption
- 8 half/full-duplex channels
- IP67 waterproof enclosure and industrial design for harsh environment applications
- Wall or pole mounting optional
- PoE or DC supply optional
- Capacitor for sending alarms in case of power failure
- Multi backhaul backups with Ethernet, cellular (4G/3G) and Wi-Fi
- Enable security communication with multiple VPNs like IPsec/OpenVPN/L2TP/PPTP/DMVPN
- Devicehub and Milesight IoT Cloud provide easy and centralized management of remote devices
- Compatible with mainstream network servers like The Things Industries, ChirpStack, Actility, Everynet, etc.
- Detect and analyze the noise level and provide intuitive diagram for deployment
- Built-in network server and MQTT/HTTP/HTTPS API for easily integration
- Support BACnet/IP to integrate LoRaWAN data to BMS system easily
- Embedded Python SDK for users secondary development
- Fast and user-friendly programming by Node-RED development tool

◆ Specifications

Hardware System

CPU	Quad-core 1.5 GHz, 64-bit ARM Cortex-A53
Memory	512 MB DDR4 RAM
Flash	8 GB eMMC

LoRaWAN®

Antenna Connector	2 × 50 Ω N-Female External Connectors
Channel	8 (Half/Full-duplex)
Frequency Band	CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923-1&2&3&4
Sensitivity	-140dBm Sensitivity @292bps
Output Power	27dBm Max
Protocol	V1.0 Class A/Class B/Class C and V1.0.2 Class A/Class B/Class C
LBT ¹	Support

Ethernet Interface

Port	1 × RJ45 (PoE PD supported)
------	-----------------------------

¹ AU915 and US915 do not support LBT.

Physical Layer	10/100/1000 Base-T (IEEE 802.3)
Data Rate	10/100/1000 Mbps (Auto-Sensing)
Interface	Auto MDI/MDIX
Mode	Full or Half Duplex (Auto-Sensing)
Wi-Fi Interface	
Antenna	Internal Antenna
Standards	IEEE 802.11 b/g/n, 2.4GHz
Mode	AP or Client mode
Security	WPA/WPA2 authentication, WEP/TKIP/AES encryption
Tx Power	802.11b: 18 dBm +/-2.0 dBm (11 Mbps)
	802.11g: 15 dBm +/-2.0 dBm (6 Mbps)
	802.11g: 15 dBm +/-2.0 dBm (54 Mbps)
	802.11n@2.4 GHz: 14 dBm +/-2.0 dBm (MCS0_HT20)
	802.11n@2.4 GHz: 14 dBm +/-2.0 dBm (MCS7_HT20)
	802.11n@2.4 GHz: 13 dBm +/-2.0 dBm (MCS0_HT40)
	802.11n@2.4 GHz: 13 dBm +/-2.0 dBm (MCS7_HT40)
Cellular Interface (Optional)	
Antenna	Internal Antenna
SIM Slot	1 (mini SIM-2FF)
GPS	
Antenna	Internal Antenna
Sensitivity	-167dBm@Tracking, -149dBm@Acquisition, -161dBm@Re-acquisition
Position Accuracy	<2.5m CEP
Others	
Reset Button	1 × RST
Console Port	1 × Type-C
LED Indicators	1 × SYS, 1 × LoRa, 1 × LTE
Built-in	Watchdog, RTC, Timer
Software	
Network Protocols	PPPoE, SNMP v1/v2c/v3, TCP, UDP, DHCP, DDNS, HTTP, HTTPS, DNS, ARP, SNTP, Telnet, SSH, MQTT, BACnet/IP, etc.
VPN Tunnel	OpenVPN/IPsec/PPTP/L2TP/GRE/DMVPN
Firewall	ACL/DMZ/Port Mapping/MAC Binding/URL Filter
Management	Web, CLI, SMS, On-demand dial up, DeviceHub, Milesight IoT Cloud, Yeastar Workplace Platform

Reliability WAN Failover

App Python SDK, Node-RED

Power Supply and Consumption

Power Supply 1. 802.3 af PoE
2. DC Power (6~12 V) via M12 Connector

Power Consumption Typical 3.6 W, Max 4.8 W

Physical Characteristics

Ingress Protection IP67

Dimensions 240 x 164 x 90.9 mm (9.45 x 6.46 x 3.58 in)

Installation Wall or Pole Mounting

Environmental

Operating Temperature -40°C to +70°C (-40°F to +158°F)

Reduced Cellular Performance Above 60°C

Storage Temperature -40°C to +85°C (-40°F to +185°F)

Ethernet Isolation 1.5 kV RMS

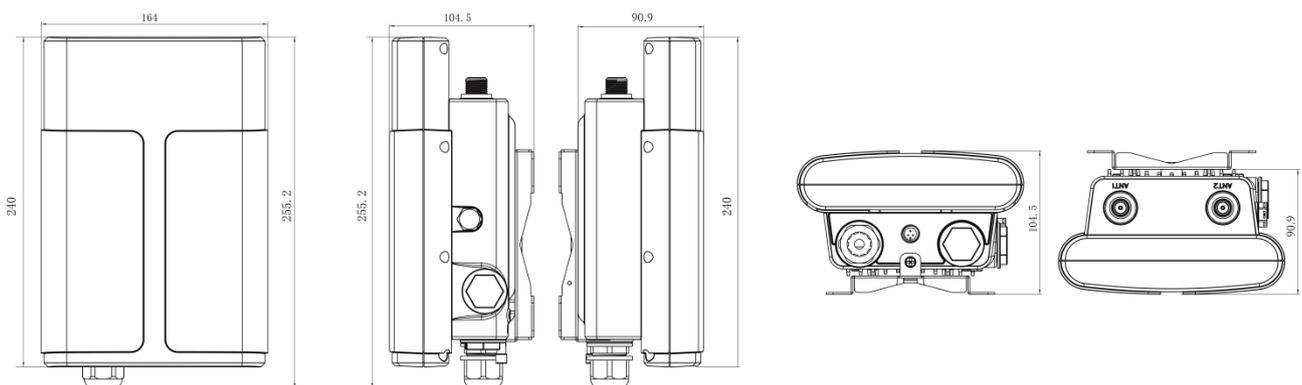
Relative Humidity 0% to 95% (non-condensing) at 25°C/77°F

Approvals

Regulatory CE, FCC, RCM,TELEC, ANATEL

Environmental RoHS

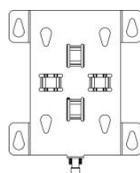
◆ Dimensions(mm)



◆ Accessories



1 x PoE Injector



1 x Mounting Bracket



4 x Wall Mounting Kits



1 x RJ45 Cable Gland

IoT Controller UC300 Series

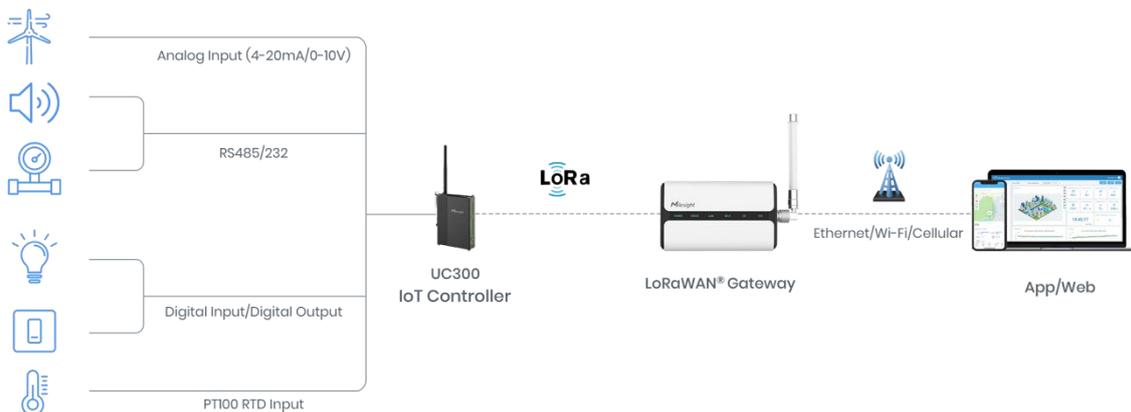
Milesight

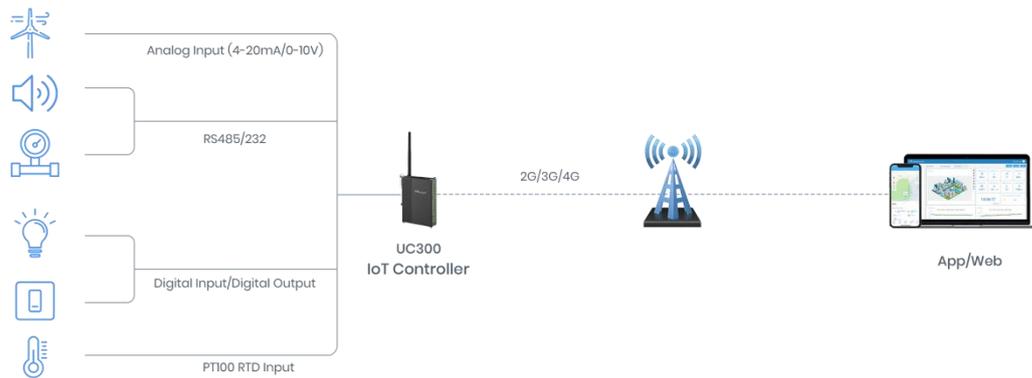


UC300 series is an IoT controller used for remote control and data acquisition from diverse devices. It contains multiple I/O interfaces including analog input, digital input, relay output, serial port, PT100 RTD input, which support remote device data transmission via LoRaWAN® or 3/4G networks. Besides, UC300 series supports multiple trigger conditions and actions which can work autonomously even when the network dropped. Combining with Milesight IoT Cloud solution, it can monitor and control remote devices via web server or mobile App easily.

Adopting industrial design and IP30 metal case, UC300 is widely used in indoor applications like smart factory, building automation, etc.

◆ Application Example





◆ Features

- Easy to connect with diverse wired devices through DIO/AI/RS232/RS485/PT100 RTD input interfaces
- Support LoRaWAN® or 3/4G wireless communication
- Multiple triggering conditions and actions
- Embedded watchdog for device working stability
- Industrial metal case design with wide operating temperature range
- Compliant with standard LoRaWAN® gateways and network servers
- Quick and easy management with Milesight IoT Cloud solution

◆ Specifications

Wireless Transmission

LoRaWAN® Model (Option A)

Technology	LoRaWAN®, LoRa D2D
Antenna Connector	1 × 50 Ω SMA Connector (Center PIN: SMA Female)
Frequency	CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923-1&2&3&4
Tx Power	16dBm (868MHz)/22dBm (915MHz)/19dBm (470MHz)
Sensitivity	-137dBm @300bps
Mode	OTAA/ABP Class C
Advanced Feature	LoRa D2D Controller, LoRa D2D Agent

Cellular Model (Option B)

Network	4G LTE/3G/2G
Antenna Connector	1 × 50 Ω SMA Connector (Center PIN: SMA Female)
SIM Slot	1 (Micro SIM-3FF)
Application Mode	TCP/UDP/MQTT/AWS/Milesight IoT Cloud/SMS

Data Interfaces

Interface Type	3.5mm Terminal Block
----------------	----------------------

IO

Ports	4 × DI + 2 × DO
Digital Input	Opto-isolated Digital Inputs, 3-24VDC (pulse counter support)
Digital Output	SPDT Relay Contact Rating: 3A@DC Max: 30 V or AC Max: 250 V

Serial Port

Ports	1 × RS232 + 1 × RS485
Baud Rate	1200~115200 bps
Protocol	Transparent (RS232), Modbus RTU (RS485)

Analog Input

Ports	2 × 4~20 mA + 2 × 0~10 V
Resolution	12 bit

Analog Input (RTD)

Ports	2 × PT100 RTD Input
Input Connections	2, 3-wire
Resolution	12 bit
Range	-200°C ~ 800°C

Others

Configuration Port	1 × Type-C
LED Indicators	1 × System, 1 × ACT
Built-in	Watchdog, Timer

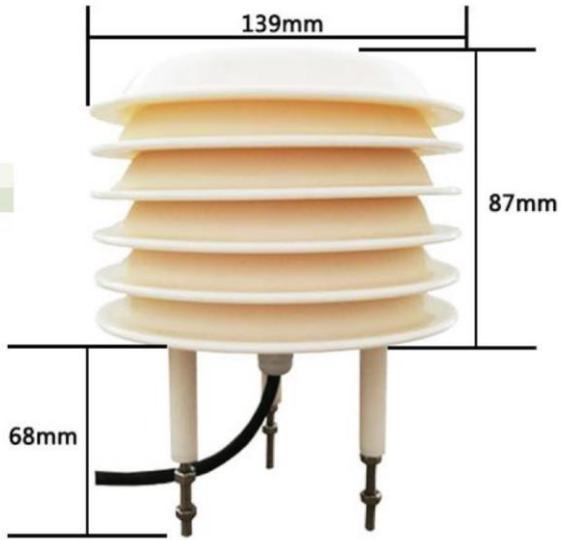
Physical Characteristics

Power Connector	3.5 mm Terminal Block
Power Supply	5-24 VDC
Color & Material	Black, Metal
Ingress Protection	IP30
Operating Temperature	-20°C ~ 60°C (-4°F to +140°F)
Relative Humidity	0% ~ 95% (non-condensing) at 25°C/77°F
Dimensions	93 × 70 × 22 mm (3.66 × 2.76 × 0.87 in)
Installation	Desktop, Wall Mounting, DIN Rail Mounting

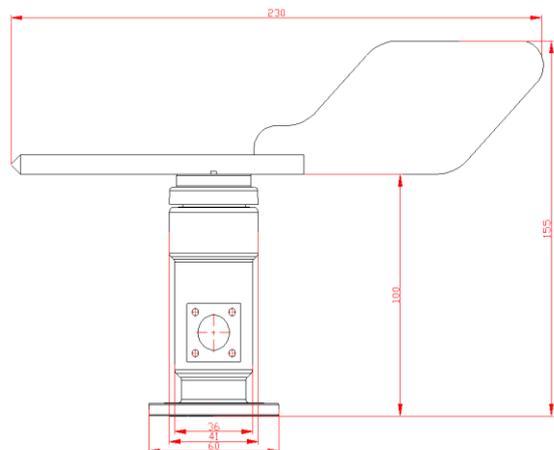
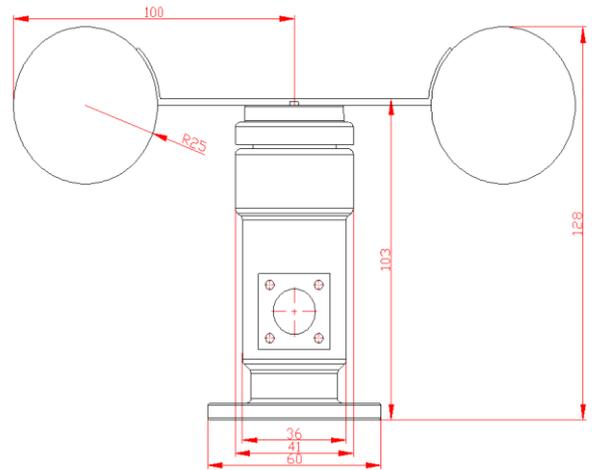
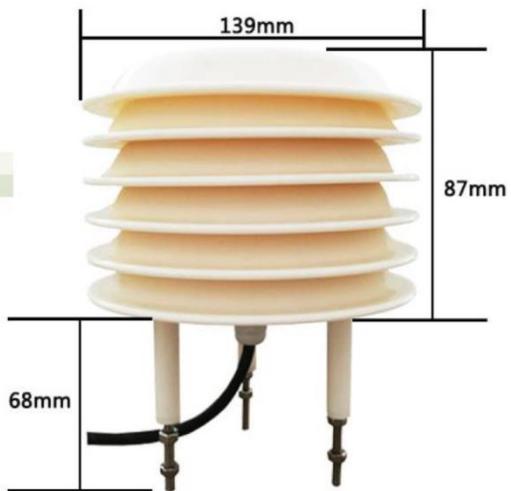




Interfaces



Dimensions



ES106 System Parameter	
Power Input	12/24VDC (12~24VDC)
Communication	RS485 Modbus RTU
Oper. Temp. & Hum.	-40°C~80°C , 15~95% RH
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: 0-60m/s Accuracy Level: ± 1 m/s Operation Temperature: -40~80°C Operation Humidity: 15-95% RH
Wind Direction	Detection Range: 0~360° (16 Direction) Accuracy Level: 22.5° (1 Direction) Operation Temperature: -40~80°C Operation Humidity: 15-95% RH
Temperature	Detection Range: -40~80°C Accuracy Level: ± 0.5 °C
Humidity	Detection Range: 0~100% RH Accuracy Level: ± 3 % RH
PM2.5	Detection Range: 0-1000ug/m ³ Measurement: Laser Detection Accuracy Level: $< \pm 10$ % (25°C) Resolution: 0.1ug/m ³ Operation Temperature: -40~80°C Operation Humidity: 0~95% RH
PM10	Detection Range: 0-1000ug/m ³ Measurement: Laser Detection Accuracy Level: $< \pm 10$ % (25°C) Resolution: 0.3ug/m ³ Operation Temperature: -40~80°C Operation Humidity: 0~95% RH
ES104 System Parameter	
Power Input	12/24VDC (12~24VDC)
Communication	RS485 Modbus RTU
Oper. Temp. & Hum.	-40°C~80°C , 15~95% RH
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: -40~80°C Accuracy Level: $\pm 0.5^{\circ}\text{C}$
Humidity	Detection Range: 0~100% RH Accuracy Level: $\pm 3\%$ RH
PM2.5	Detection Range: 0-1000ug/m ³ Measurement: Laser Detection Accuracy Level: $< \pm 10\%$ (25°C) Resolution: 0.1ug/m ³ Operation Temperature: -40~80°C Operation Humidity: 0~95% RH
PM10	Detection Range: 0-1000ug/m ³ Measurement: Laser Detection Accuracy Level: $< \pm 10\%$ (25°C) Resolution: 0.3ug/m ³ Operation Temperature: -40~80°C Operation Humidity: 0~95% RH

ES102 System Parameter

Power Input	12/24VDC (12~24VDC)
Communication	RS485 Modbus RTU
Oper. Temp. & Hum.	-40°C~80°C , 15~95% RH
Warranty	1 year

ES102 Interface

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

ES102 Inspection Parameter

Wind Speed	Detection Range: 0-60m/s Accuracy Level: $\pm 1\text{m/s}$ Operation Temperature: -40~80°C Operation Humidity: 15-95% RH
Wind Direction	Detection Range: 0~360° (16 Direction) Accuracy Level: 22.5° (1 Direction) Operation Temperature: -40~80°C Operation Humidity: 15-95% RH

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

Device Stack List				
Modbus ID	Parameter	Decimal	Address	Description
40001	Humidity	1	3	Range : 0-100.0%RH
40002	Temperature	1	3	Range : -40-80°C
40005	PM2.5	0	3	Range : 0-1000ug/m3
40010	PM10	0	3	Range : 0-1000ug/m3
40257	Device Address	0		Device Address
40258	Bard Rate	0		0=2400, 1=4800, 2=9600
40023	Wind Speed	1	1	Range : 0-60m/s
40024	Wind Direction	0	2	North-northeast: 0x0000 ; Northeast: 0x0001 Northeast East: 0x0002 ; North: 0x0003 East-East: 0x0004 ; Southeast: 0x0005 South-southeast: 0x0006 ; South: 0x0007 South-southwest: 0x0008 ; Southwest: 0x0009 West-West: 0x000A ; West: 0x000B West-northwest: 0x000C ; Northwest: 0x000D North-northwest: 0x000E ; North: 0x000F



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 Shutter
	1 x Wind Direction Sensor (including cable)
	1 x Wind Speed Sensor (including cable)
	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
Model	Description
ES102	Outdoor Environment Air Quality Inspection System. Integrated external Wind Direction, Wind Speed sensors, Output: RS485
	Package List
	1 x Wind Direction Sensor (including cable)
	1 x Wind Speed Sensor (including cable)
	1 x QIG