



AVCOMM®

# AVC-ES107

## Datasheet

Aiming to create better and safer working environments and life experiences through the products we deliver.



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## Integrated Outdoor Weather Station Temperature, Humidity, Noise, Atmospheric Pressure, Wind Speed, Wind Direction CO2 or PM2/10 Sensor

### AVC-ES107-CO2/AVC-ES107-PM

The AVC-ES107 series is an integrated outdoor sensor unit for all types of environmental and weather monitoring sensors include temperature, humidity, noise, Atmospheric Pressure, wind direction, wind speed, and CO2 or PM2.5&10. The monitored data is output through RS-485 interface by Modbus protocol. The AVC-ES107 sensor unit accepts 10~30Vdc power input voltage and is protected by the IP65 grade Anti-U/V lightweight ABS louver radiation shield. The mounting kit can be installed over pole top. With the optional gateway AP222, LoRa end node AP144-LC, or outdoor AP402-SCB gateway, the data can be monitor on the cloud platform. The AVC-ES107 sensor unit can be widely applied in agriculture, residential or industrial area weather and air quality monitoring, and remote weather stations.



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

### Features & Benefits

#### High Integrated Monitoring

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

#### Outdoor Protective Enclosure

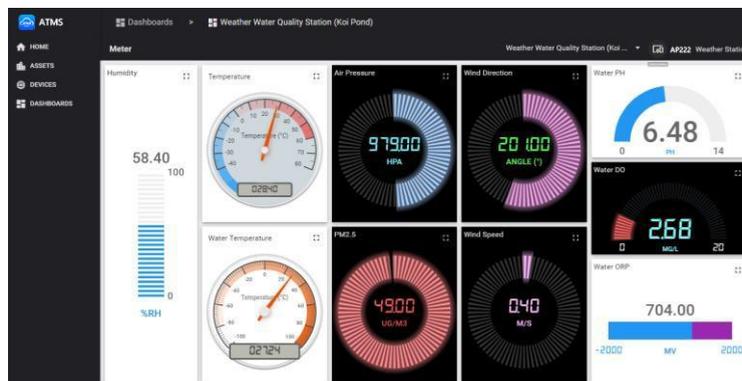
- Prevent direct ultraviolet radiation to the sensors
- Avoid rapid aging of sensors under harsh environmental conditions such as strong winds, rain, and snow
- The sensor parts are ventilated for truly sensing the changes in external detection parameters

#### 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 – ATMS

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



## Ordering Information .....

Model	Description
<b>AVC-ES107-CO2</b>	Outdoor Environment Basic Unit, Temperature, Humidity, Noise, Pressure, Wind Speed, Wind Direction, CO2, RS485 Modbus, 10-30V Power, Mounting Kit
<b>AVC-ES107-PM</b>	Outdoor Environment Basic Unit, Temperature, Humidity, Noise, Pressure, Wind Speed, Wind Direction, PM2.5/10, RS485 Modbus, 10-30V Power, Mounting Kit



## Specifications

Temperature & Humidity	
<b>Measuring Range</b>	Temperature: -40°C~+80°C (Sensor Measuring Range); Humidity: 0%RH~99%RH
<b>Accuracy</b>	Temperature: ±0.5°C (25°C) Humidity: ±3%RH(60%RH,25°C)
<b>Long term stability</b>	Temperature: ≤0.1°C/y Humidity: ≤1%/y
<b>Response time</b>	≤1s(at 1m/s wind speed)
CO2 (Either CO <sub>2</sub> or PM2.5/PM10)	
<b>Measuring Range</b>	0~5000ppm
<b>Accuracy</b>	±(50ppm+ 3%F.S) (25°C)
<b>Long term stability</b>	≤1%/y
<b>Response time</b>	≤90S
<b>Resolution</b>	1ppm
PM2.5/PM10 (Either CO <sub>2</sub> or PM2.5/PM10)	
<b>Measuring Range</b>	0~1000ug/m3
<b>Resolution</b>	1ug/m3
<b>Accuracy</b>	50% @0.3um, 98% @>=0.5um ±10ug/m3@0~100ug/m3
<b>Response time</b>	≤90S
<b>Sensor Operating</b>	Temperature: -20~60°C Humidity:0%-95%RH, No Condensing
Atmospheric Pressure	
<b>Measuring Range</b>	0~120Kpa
<b>Accuracy</b>	±0.15Kpa@25°C 101Kpa
<b>Long term stability</b>	-0.1Kpa/Year
<b>Response time</b>	≤1 Sec
<b>Sensor Operating</b>	Temperature -20-60°C;Humidity:0%-95%RH, No Condensing
Noise	
<b>Measuring Range</b>	30dB~120dB
<b>Frequency Range</b>	20Hz~12.5Hz
<b>Accuracy</b>	±0.5dB(In the reference pitch, 94dB@1kHz)
<b>Long term stability</b>	≤3db/y
<b>Response time</b>	≤1s
<b>Sensor Operating</b>	Temperature -20-60° C;Humidity:0%-95%RH, No Condensing
Wind Speed	
<b>Wind Measurement Range</b>	0~70m/s
<b>Accuracy</b>	± (0.2+0.03V ) m/s V for wind speed (60%RH,25°C)
<b>Housing Material</b>	Polycarbonate
<b>Response time</b>	≤0.5s



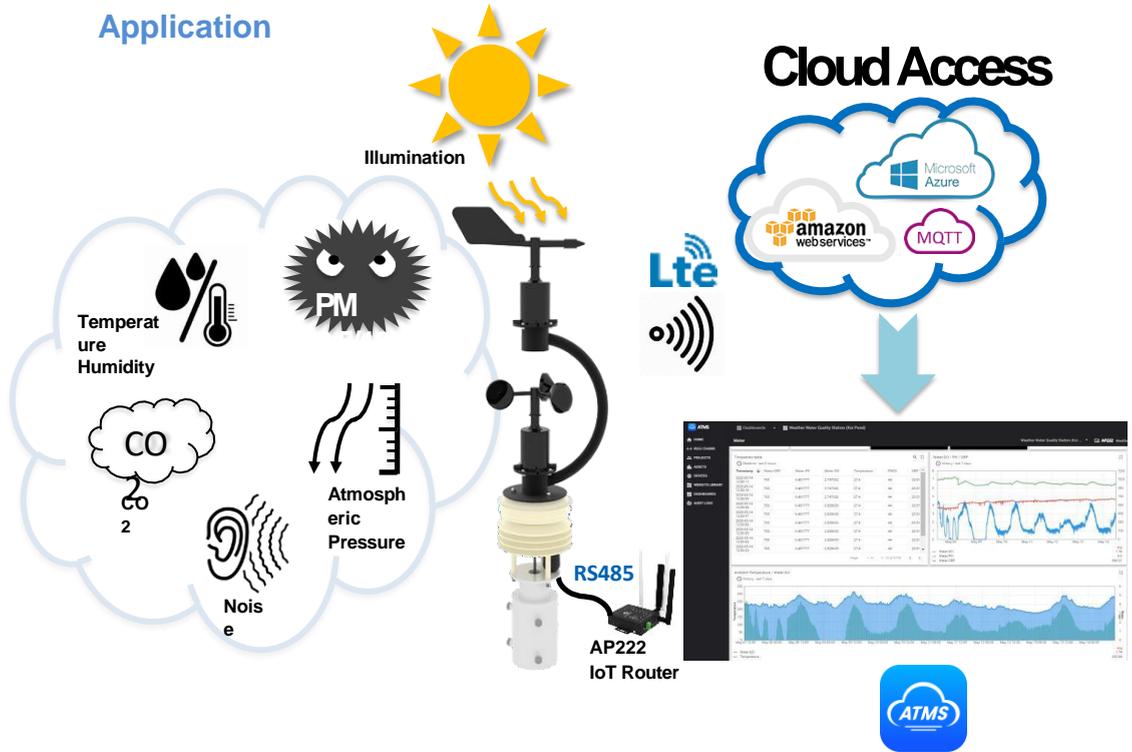
## Specifications

Wind Direction	
Wind Measurement Range	360° , 8 directions
Response time	≤0.5s
Accuracy	45°
System Parameters	
Power Range	DC 10~30V, 0.8W Power consumption
Enclosure Material	Shelter Box, Plastic ABS, Anti-U/V, UL94 V0
Enclosure Protection	IP65 Protection Level
Enclosure Dimension	280mm (Diameter) x 800mm (High)
Communication	Modbus RTU protocol, 2-Wire RS-485 RS485 Modbus RTU Pulling & Waiting Time ≥ 200mS
Op. Temperature	-20 ~ 60°C, 0~95% Humidity, No Condensing

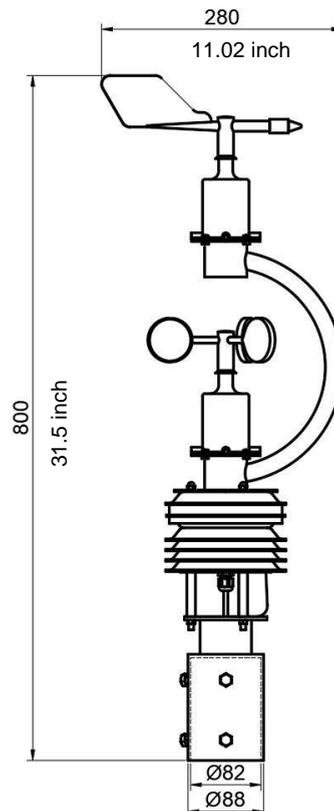
Modbus Register Information				
Register Address	PLC or Configuration Address	Content	Operation	Description
500	40501	Wind Speed Value	Read only	10 Times the Real Value
501	40502	Wind Power	Read only	Real Value( Wind Speed=Wind Level Value)
502	40503	Wind Direction (0-7)	Read only	Real Value (Due north is 0, clockwise increases the value, due east is 2)
503	40504	Wind Direction (0-360° )	Read only	Real Value (Due north is 0, clockwise increases the degrees, due east is 2)
504	40505	Humidity Value	Read only	10 Times the Real Value
505	40506	Temperature Value	Read only	10 Times the Real Value
506	40507	Noise Value	Read only	10 Times the Real Value
507	40508	PM2.5 Value (If CO2 type device is selected, this register is CO2 value)	Read only	Real Value
508	40509	PM10 Value (If CO2 type device is selected, this register is CO2 value)	Read only	Real Value
509	40510	Atmospheric pressure value (Kpa)	Read only	10 Times the Real Value

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## Function interface



## Installation dimensions



Unit: mm