AVC-ES105 Datasheet

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

AVCOMM Technologies, Inc **www.avcomm.us**

Email: info@avcomm.us

Phone: (713) 933-4534

Address: 333 West Loop North, Suite 460
Houston, TX 77024
United States

High Integrated Out-Door Weather Station CO2, PM2.5, Illumination, Temperature, Humidity, Noise, Atmospheric Pressure Sensor

AVC-ES105-CO2/AVC-ES105-PM

The AVC-ES105 series is an intergraded outdoor sensor unit for all types of environmental and weather monitoring sensors include illumination, temperature, humidity, noise, Atmospheric Pressure and CO2 or PM2.5&10. The monitored data is output through RS- 485 interface by Modbus protocol. The AVC-ES105 sensor unit accepts 10~30Vdc power input voltage and is protected by the IP65 grade Anti-U/V lightweight ABS instrument shelter radiation shield. With the optional gateway AP222 or LoRa end node AP144-LC, 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, 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
AVC-ES105-PM	Outdoor Environment Basic Unit, Temperature, Humidity, Noise, Pressure, Illumination, PM2.5/10, RS485 Modbus, 10-30V Power
AVC-ES105-CO2	Outdoor Environment Basic Unit, Temperature, Humidity, Noise, Pressure, Illumination, CO2, RS485 Modbus, 10-30V Power

Specifications

Temperature & Humidity	
Measuring Range	Temperature: -40~120 °C (Sensor Measuring Range) Humidity: 0%RH~99%RH
Accuracy	Temperature: ±0.5°C (25°C) Humidity: ±3%RH (60%RH,25℃)
Long term stability	Temperature: ≤0.1°C/year Humidity: ≤1%RH/year
Response time	≤1s
Illumination	
Measuring Range	0~200000 Lux
Accuracy	±7% (25°C)
Long term stability	≤5%/y
Response time	0.1s
CO2 (Either CO2 or PM2.5/PM10)	
Measuring Range	0~5000ppm
Resolution	1ppm
Accuracy	±(50ppm+ 3%F·S) (25℃)
Long term stability	≤1%/y
Response time	≤2s
PM2.5/PM10 (Either CO2 or PM2.5/PM10)	
Measuring Range	0~1000ug/m3
Resolution	1ug/m3
Accuracy	50%@0.3um，98%@>=0.5um ±10ug/m3@0~100ug/m3
Long term stability	≤1%/y
Response time	≤90s
Atmospheric Pressure	
Measuring Range	0~120Kpa
Accuracy	±0.15Kpa@25℃ 101Kpa
Long term stability	-0.1Kpa/y
Response time	≤1s
Noise	
Measuring Range	30dB~130dB
Frequency Range	20Hz~12.5Hz
Accuracy	±0.5dB (In the reference pitch, 94dB@1kHz)
Long term stability	≤3db/y
Response time	≤1s

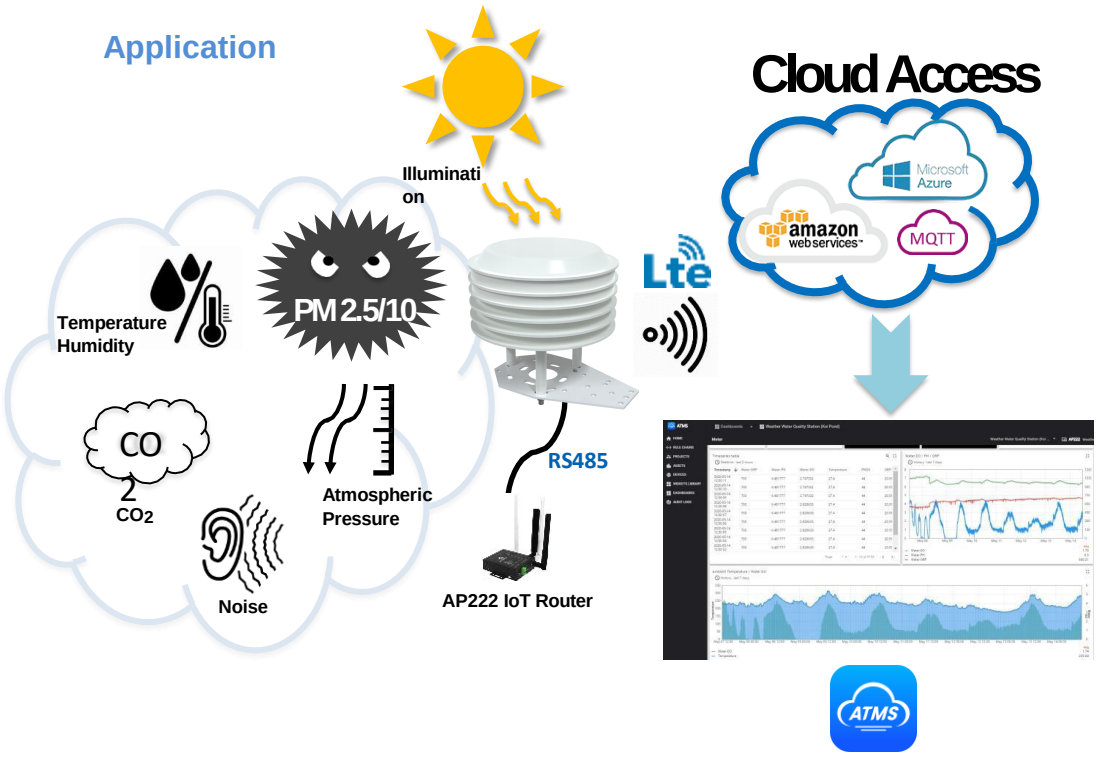
Specifications

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	138mm (Diameter) x 145 mm (High)
Communication	Modbus RTU protocol, 2-Wire RS-485 RS485 Modbus RTU Pulling & Waiting Time ≥ 200 m/s
Op. Temperature	-20~ 60℃, 0~95% Humidity, No Condensing

ES105 Modbus Register Information

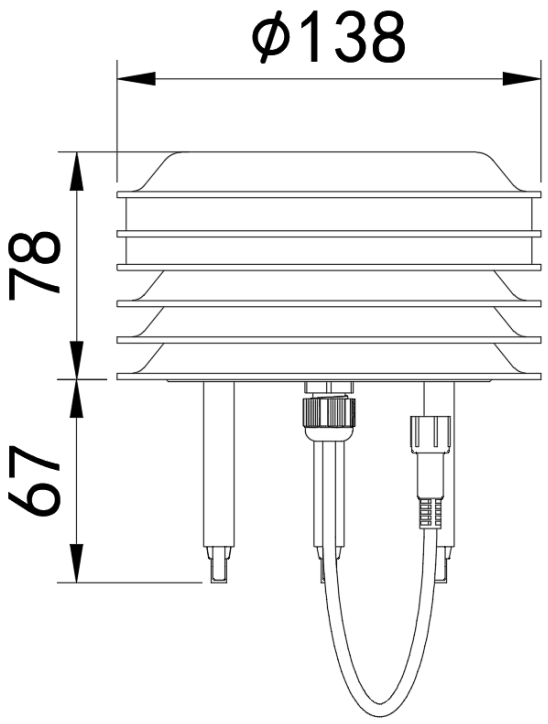
Register Address	PLC or Configuration Address	Content	Operation	Description
500	40501	Humidity Value	Read only	Real Value = Read Value /10
501	40502	Temperature Value	Read only	Real Value = Read Value /10
502	40503	Noise Value	Read only	Real Value = Read Value /10
503	40504	PM2.5/CO2	Read only	Real Value
504	40505	PM10 Value	Read only	Real Value
505	40506	Atmospheric Pressure（Kpa）	Read only	Real Value = Read Value /10
506	40507	20W Lux Value（Hight 16 bit Value)	Read only	Real Value
507	40508	20W Lux Value（Low 16 bit Value)	Read only	Real Value

Function interface

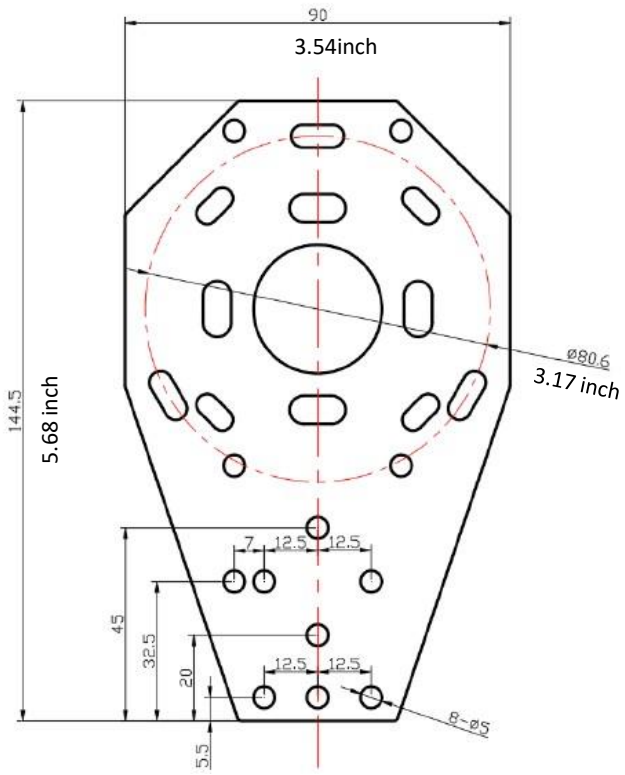


Installation dimensions

Unit: mm



Main Device



Mount Kit