Wireless Air Quality Sensor

The Wireless Tunnel Air Quality Sensorn Combines Air Particles, Metal Oxide gases (MOx), Temperature, and Humidity in a single sensor.

Metal Oxide Gases (MOx)

The sensor detects various Metal Oxide (MOx) gases, displaying the value as a VOC Index.
Examples of these gases are :

- Acetone (eg. paints and glues)
- Toluene (eg. furniture)
- Ethanol (eg. perfume, cleaning fluids)
- Hydrogen Sulfide (eg. decaying food)
- Benzene (eg. Cigarette smoke)

The VOC Index is a logarithmic scale that is relative to the typical indoor gas composition over the past 24 hours. With a range of 0 to 500, the typical value for a normal environment is 100. Values greater than 100 indicate worsening air quality with a higher concentration of metal oxide gases over the past 24 hours. Values lower than 100 indicate improving air quality.

Air Particles

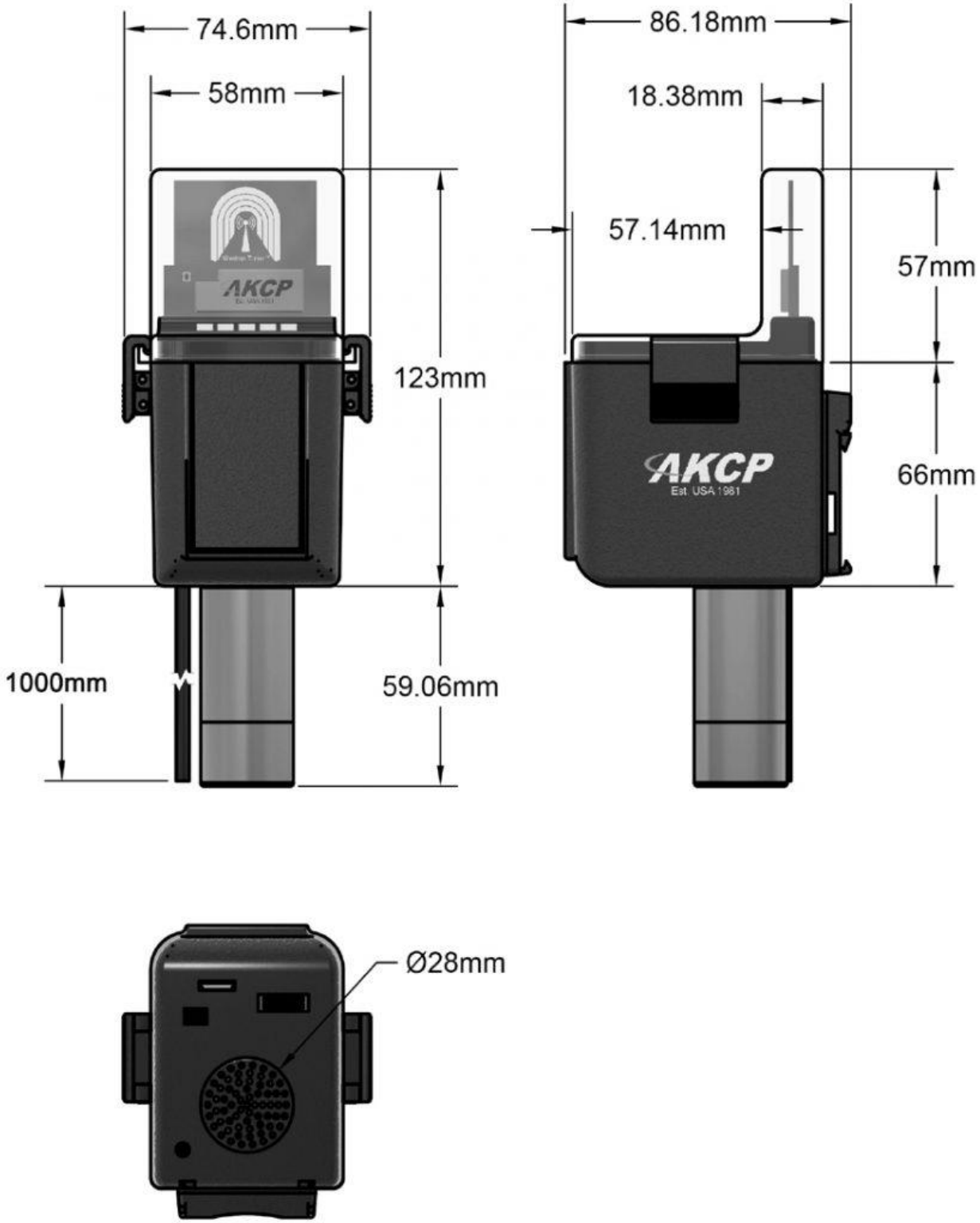
Detection for 5 different sizes. PM0.5, PM1.0, PM2.5, PM4 and PM10. The sensor is able to measure the mass concentration of particles in the PM1.0 to PM10 range and particle number concentration in the PM0.5 to PM10 range. The typical particle size is also measured. This measurement is based on the average size of the current sample.

An air particle sensor is utilized during indoor air quality (IAQ) assessments of clean rooms and workplaces. The specific type of particles is not detected, but it identifies the quantity or mass of airborne particles.
Source: www.sitelogiq.com/blog/indoor-air-quality-assessments

These air particles could be sourced from :

- Exhaust smoke
- Airborne dust particles
- Pollen

Airborne pollutants can be a health hazard, and result in sneezing, headaches, asthma, and so on. In addition, during many agricultural and industrial processes, airborne dust can be a serious hazard forming combustible dust clouds.


74.6mm
58mm
123mm
1000mm
59.06mm
86.18mm
18.38mm
57.14mm
57mm
66mm
AKCP
Est. USA 1981
Ø28mm

Technical Specifications

Air Particle Sensor	Particle Mass Concentration Particle Number Concentration Typical Number Concentration
Particle mass concentration range	PM 1.0 / 2.5 / 4 /10 : 0 ~ 500 µg/m3
Mass concentration size range	PM1.0 : 0.3 to 1.0 µm PM2.5 : 0.3 to 2.5 µm PM4 : 0.3 to 4.0 µm PM10 : 0.3 to 10.0 µm
Mass concentration precision	* PM1 and PM2.5 0 to 100 µg/m3 : ±10 µg/m3 100 to 1000 µg/m3 : ±10 % measured value. * PM4 and PM10 0 to 100 µg/m3 : ±25 µg/m3 100 to 1000 µg/m3 : ±25 % measured value.
Particle number concentration range	PM 0.5 / 1 / 2.5 / 4 / 10 : 0 ~ 1500 #/cm3
Number concentration size range	PM0.5 : 0.3 to 0.5 µm PM1.0 : 0.3 to 1.0 µm PM2.5 : 0.3 to 2.5 µm PM4 : 0.3 to 4.0 µm PM10 : 0.3 to 10.0 µm
Typical Particle size	0.1 to 10 µm
VOC Index Sensor	Index of Air Quality VOC index, MOx based gas sensor
Range	0 to 500, with 100 as typical air quality < 100 = better air quality > 100 = worse air quality
Note	VOC Index visualizes VOC events on a logarithmic scale, and relative to typical indoor gas composition during the recent 24th. This means that level “typical” refers to the typical conditions of the environment with low and high VOC backgrounds. The scale does not represent absolute concentrations. VOC Index notifies end users or air treatment devices when air pollution changes.

Environmental	
Temperature	
Measurement Range	-40°C to +75°C 40°F to +167°F
Measurement Resolution	0.1°C increments 0.2°F increments
Measurement Accuracy	Typical: * ±0.3 from -40°C to +75°C * ±0.4 from -40°F to +167°F Maximum: * ±0.4 at -40°C and ±0.4 at +75°C * ±0.7 at -40°F and ±0.7 at +167°F
Humidity	
Measurement Range	0 to 100% Relative Humidity (RH)
Measurement Resolution	1%RH increments, 0.01%RH sensor reading
Measurement Accuracy	±2%RH @25°C
Gateway Sensor Count	16 (3+13)
Status Indication	Led indication for – Mode – Status – RSSI
Operating Environment	Temperature : Min. -35°C – Max.80°C Humidity: Min. 20% – Max. 80% (Non-Condensing)
LoRa (R) Radio Regional plans	– EU868 : 863~868Mhz, Max TX Power +14dBm, Duty Cycle 1% – US915: 903~915Mhz, Max TX Power +17dBm – AS923 : 920~925Mhz, Max TX Power +14dBm, Duty Cycle 1% – KR920 (Korea) : 922~923Mhz, Max TX Power +14dBm, Duty Cycle 1% – IL917 (Israel) : 915~917Mhz , Max TX Power +14dBm, Duty Cycle 1%
Certification	CC Part15C, CE EN300220-2
Power source	Requires external micro-USB 5V power source Optional 12V input (customer order)