



A54-20 5-in-1 Air Quality Sensor

The MAXMAC A54-20 5-in-1 Air Quality Sensor is a compact multi-parameter environmental sensor specially designed for HVAC applications. It integrates PM2.5, CO₂, temperature, humidity, and TVOC monitoring into one device, providing efficient and reliable air quality data for ventilation, air conditioning, and indoor environmental control systems.

Built for modern HVAC environments, this sensor supports RS485 communication for stable long-distance data transmission and easy system integration. Its compact housing, flame-retardant material, and low-power design make it well suited for commercial buildings, smart ventilation systems, fresh air units, and air handling equipment.

By combining multiple sensing technologies in one compact module, the MAXMAC A54-20 5-in-1 Air Quality Sensor helps improve indoor air quality management, optimize system control strategies, and reduce integration complexity for HVAC manufacturers and system designers.

Key benefits:

- Integrated PM2.5, CO₂, temperature, humidity, and TVOC monitoring
- Designed specifically for HVAC and indoor air quality applications
- RS485 communication for reliable system integration
- Compact size for easy installation
- Low power consumption
- Flame-retardant PC+ABS housing
- Stable and accurate sensing performance
- Suitable for commercial and industrial environmental control systems

Typical applications:

- HVAC systems
- Fresh air systems
- Air handling units (AHU)
- Ventilation control systems
- Smart building air quality monitoring
- Commercial indoor environmental monitoring
- Industrial environmental control systems
- Public building air quality management

Standard Specification

Item	Description
Product name	A54-20 5-in-1 Air Quality Sensor
Model	A5420
Functions	PM2.5 + CO ₂ + Temperature + Humidity + TVOC
Communication	RS485
Dimensions	66.4 × 51.4 × 19 mm
Housing material	PC+ABS, V0 flame-retardant
Operating voltage	DC12–DC24V
Operating current	Average: 35 ± 5 mA @ 12.0 VDC, Peak: <150 mA (10 ms), at room temperature
Standby power consumption	≤ 1 W
Power consumption	≤ 3 W
PM2.5 sensing principle	Laser scattering technology
PM2.5 measuring range	0–999 µg/m ³
PM2.5 resolution	1 µg/m ³
PM2.5 accuracy	≤100 µg/m ³ : ±15 µg/m ³ ; >100 µg/m ³ : ±15%
CO ₂ sensing principle	NDIR infrared technology
CO ₂ measuring range	400–9999 ppm
CO ₂ resolution	1 ppm
CO ₂ accuracy	±(50 ppm + 5% of reading)
TVOC sensing principle	Semiconductor conductivity
TVOC measuring range	1–30000 ppb
TVOC resolution	1 ppb
Temperature sensing principle	CMOSens®
Temperature measuring range	-20°C to 85°C
Temperature resolution	0.1°C
Temperature accuracy	±2°C
Humidity sensing principle	CMOSens®
Humidity measuring range	1–99%RH
Humidity resolution	0.1%RH
Humidity accuracy	±5%RH
Interface	4-pin socket
Communication interface	RS485 protocol, 4-pin (+ / A+ / B- / GND)
Physical connector	GH1.25-4P locking connector
Operating environment	-10°C to 50°C, 0–95%RH, non-condensing
Storage environment	-20°C to 65°C, 0–99%RH, non-condensing

Note:

The matching GH1.25-4P locking terminal cable should be prepared by the user for connection.

Document: MAXMAC-A5420-EN Rev:1