

BASIOX COMBO SENSOR

PM 2.5, CO, NO₂

Model Series: BC-PM/CO/NO₂ -XXX



INTRODUCTION

Carbon monoxide (CO)

Carbon monoxide (CO) is a colorless, odorless gas that is highly toxic to humans and animals when inhaled in significant concentrations. It is a byproduct of the incomplete combustion of carbon-containing fuels, including wood, gasoline, natural gas, and coal. Common sources of CO emissions include vehicle exhaust, gas-powered appliances, and heating systems with inefficient combustion processes.

Nitrogen dioxide (NO₂)

Nitrogen dioxide (NO₂) is a reddish-brown gas with a sharp, acrid odor. It is one of several nitrogen oxides (NO_x) formed when nitrogen (N₂) and oxygen (O₂) undergo high-temperature reactions, such as during combustion processes in industrial settings or vehicle engines. NO₂ is a critical air pollutant and a key precursor to the formation of ground-level ozone and smog.

Particulate Matter (PM)

Particulate Matter (PM) refers to a complex mixture of microscopic solid particles and liquid droplets suspended in the air. PM can vary in size, composition, and origin, with some particles like dust, dirt, soot, and smoke visible to the naked eye, while ultrafine particles (PM_{2.5}) require electron microscopy for detection. These particles are classified by their aerodynamic diameter, influencing their behavior in the atmosphere and potential health impacts.

Basiox Combo Sensor (CO/NO₂/PM_{2.5})

The Basiox Combo sensor provides comprehensive monitoring of carbon monoxide (CO), nitrogen dioxide (NO₂), and fine particulate matter (PM_{2.5}), offering users precise environmental data for facility management, such as in car parks or industrial environments. This multi-gas sensor system enables real-time detection and analysis, ensuring accurate assessment and control of air quality.

ENVIRONMENTAL SUSTAINABILITY

The Basiox Combo sensor, which monitors carbon monoxide (CO), nitrogen dioxide (NO₂) and fine particulate matter (PM_{2.5}), plays a crucial role in promoting environmental sustainability. By providing accurate, real-time data on harmful air pollutants, this sensor combination enables individuals, businesses, and governments to make informed decisions to reduce emissions and improve air quality. The continuous monitoring capabilities allow for proactive measures to be taken in reducing pollutant levels, thereby minimizing environmental impact. Furthermore, the integration of this sensor system with air quality control technologies supports the development of more sustainable and energy-efficient operations, contributing to a healthier environment and a lower carbon footprint.

FEATURES AND BENEFITS

- ▶ **Comprehensive Monitoring via Mobile and Web Applications:** Provides detailed, real-time information on gas concentrations and environmental conditions through both mobile and web interfaces.
- ▶ **Automated Alerts and Safety Notifications:** Delivers immediate alerts and safety recommendations to users when gas levels exceed predefined thresholds, enhancing safety and response times.
- ▶ **Historical Data Visualization:** Allows users to access historical sensor data with customizable graphical displays in hourly, daily, weekly, and monthly formats, facilitating trend analysis and environmental assessment.
- ▶ **Cloud-Based Data Storage and Integration:** Sensor data is securely stored in the cloud, ensuring easy access and seamless integration with other applications through Modbus RS485 or API-based protocols.
 - **Inbuilt Memory Backup:** Equipped with onboard memory to prevent data loss during network outages, ensuring uninterrupted data logging and integrity.
 - **Precision Calibration:** Each device undergoes span calibration to maintain accurate measurements and reliable performance over time.
- ▶ **Seamless Integration with Air Quality Control Systems:** Compatible with a wide range of air control systems, allowing for automated adjustments and improved air management based on real-time sensor data.

APPLICATIONS

Environmental Monitoring for Individuals, Government Agencies, Facility Managers, and Healthcare Providers.

TECHNICAL SPECIFICATIONS OF MODEL NO: BC-NO2/PM-XXX

WORKING PRINCIPLE	Electrochemical based principle for CO, NO2 and PM is Laser Based Light Scattering
MEASUREMENT RANGE	CO 0-5000 PPM NO2 0 - 10 PPM PM2.5 -0- 1000 µg/m3
RESOLUTION	1 ppm

CONNECTIVITY

DATA INTERVAL	5 to 60 minutes- configurable
DATA-PUSH PROTOCOL	HTTPS post request to host-server
DATA-PULL	HTTPS request on device IP

DATA SECURITY

DEVICE/APP	HTTPS Protocol
DATA OVER THE NETWORK	TLS Secured- AWS Certificate
SENSITIVE DATA: PHONE, EMAIL	AES Encryption

DEVICE FEATURES

CALIBRATION & VALIDATION	Span calibration and mid-point validation
DISPLAY TYPE	WebApp/Mobile App
DEVICE INTERFACE	On-device Software/API
SOFTWARE CAPABILITY	SartHHM Cloud Platform (in-house on AWS server) and on premise
DIMENSIONS	85(W)*85(D)*25(H) mm
DEVICE SUPPLY VOLTAGE	110 V to 240 V AC / DC - 1Amp. Preferably 12 V DC - 1 Amp, AC / DC - 1Amp.
POWER CONSUMPTION	5 Watt/hour- 3.6 KW/month
OPERATING AMBIENT TEMPERATURE	-20 °C to 60 °C
OPERATING HUMIDITY	-0-95% RH
BODY MATERIAL	ABS Plastic
MOUNTING METHOD	Wall
COMMUNICATION	4 to 22mAmp/ LoRa/ModBus RTU/ WiFi
DATA STORAGE	Inbuilt memory backup, up to to 24h
DEVICE/APP	HTTPS Protocol
DATA OVER THE NETWORK	TLS Secured- AWS Certificate

REGULATORY COMPLIANCE

CERTIFICATIONS	CE, RoHS
DISPOSABILITY	Dispose of the sensor in accordance with local electronic waste disposal regulations to minimize environmental impact.