

BASIOX CO SENSOR

Carbon Dioxide Sensor

Model Series: BC-CO-WP-XXX



INTRODUCTION

Carbon Monoxide (CO)

Carbon Monoxide (CO) is a colorless, odorless, and tasteless gas that is highly toxic to humans and animals. It is produced by the incomplete combustion of carbon-containing fuels such as gasoline, natural gas, oil, coal, and wood. Common sources of CO include vehicle exhaust, gas appliances, and industrial processes.

- **Health Effects:** CO binds with hemoglobin in the blood, reducing the blood's ability to carry oxygen. This can lead to symptoms such as headaches, dizziness, weakness, nausea, confusion, and, in severe cases, can be fatal.
- **Detection:** Because CO is undetectable by human senses, CO detectors are essential for safety in homes and workplaces.
- **Prevention:** Proper ventilation, regular maintenance of fuel-burning appliances, and the use of CO detectors can help prevent CO poisoning.

ENVIRONMENTAL SUSTAINABILITY

The Basiox CO₂ sensor, which monitors carbon dioxide (CO₂), plays a significant role in environmental sustainability by enabling better monitoring and management of carbon dioxide emissions and indoor air quality. CO₂ sensors contribute significantly to environmental sustainability by facilitating emissions monitoring, enhancing energy efficiency, improving indoor air quality, and supporting data-driven strategies aimed at reducing greenhouse gas emissions. Their implementation is a proactive step toward a more sustainable future, helping communities and industries align with global carbon reduction goals.

TECHNICAL FEATURES

- ▶ **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-C0-WP-XXX

WORKING PRINCIPLE	Electrochemical
MEASUREMENT RANGE	0 - 5000 ppm
MINIMUM DETECTION RANGE	1 ppm
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	SarHHM 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	Extruded Aluminum with Silicone Gasket
MOUNTING METHOD	Wall
COMMUNICATION	4-20 mA/ LoRaWAN /ModBus RTU/ WiFi
DATA STORAGE	Inbuilt memory backup, up to 24h
DEVICE/APP	HTTPS Protocol
DATA OVER THE NETWORK	TLS Secured- AWS Certificate

LoRaWAN CHIPSET SPECIFICATION

FREQUENCY	860-930 MHz
CHIPSET	Semtech (SX1262) + STM (STM32L)
MODULATION	FSK and LoRa Modulation
ANTENNA	External Antenna
OPERATING TEMP. RANGE	-40°C to +85°C
DIMENSION	10.0mm X 8.0mm X1.6mm
INTERFACE VOLTAGE (VDC for VIO)	3.3 VDC
SUPPLY VOLTAGE	2.2V - 3.6V for VDD_MCU, VDD_RF, VDD_TCXO
TRANSMIT MODE CURRENT	118mA @22dBm setting
TRANSMIT POWER	Up to +21.5dBm
RECEIVE MODE CURRENT	15.5mA @125kHz BW
RECEIVER SENSITIVITY	-135.5dBm @1% per 125kHz BW, SF=12
HOST INTERFACE	I2C / UART / USB / SPI
COMPLIANCE	RoHS
TECHNOLOGY	LPWA
CERTIFICATIONS	FCC / IC / CE / MIC / KC / NCC / ANATEL

REGULATORY COMPLIANCE

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