

BASIOX Cl₂ SENSOR

Chlorine Sensor

Model Series: BC-Cl₂-XXX



INTRODUCTION

Chlorine Gas (Cl₂)

Cl₂ refers to chlorine gas. It's a diatomic molecule composed of two chlorine atoms bonded together. Chlorine gas is a greenish-yellow gas with a pungent odor, like bleach. It's also highly reactive and toxic, with various industrial and sanitation applications.

- **Health Effects: Respiratory:** Coughing, difficulty breathing, chest pain, and a burning sensation in the throat and airways. **Eye:** Irritation, burning sensation, tearing, and in severe cases, corneal burns and potential damage. **Skin:** Irritation and burns, especially with liquid chlorine exposure (frostbite). **Other:** Nausea, vomiting, headache, and in severe cases, pulmonary edema (fluid accumulation in the lungs), leading to breathing difficulties.
- **Detection:** Specialized gas detectors, available in both portable and stationary models, provide accurate and reliable detection of chlorine gas. These detectors can measure low levels of chlorine, even when the odor is not noticeable.
- **Prevention:** Implement robust ventilation systems in confined spaces to prevent the accumulation of chlorine gas.

ENVIRONMENTAL SUSTAINABILITY

The Basiox Cl₂ sensor, which monitors chlorine (Cl₂), plays a significant role in environmental sustainability by enabling better monitoring and management of chlorine emissions and indoor air quality. Cl₂ 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-CI2-XXX

WORKING PRINCIPLE	Electrochemical
MEASUREMENT RANGE	0 - 200 ppm
MINIMUM DETECTION RANGE	1 ppm
RESOLUTION	0.1 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

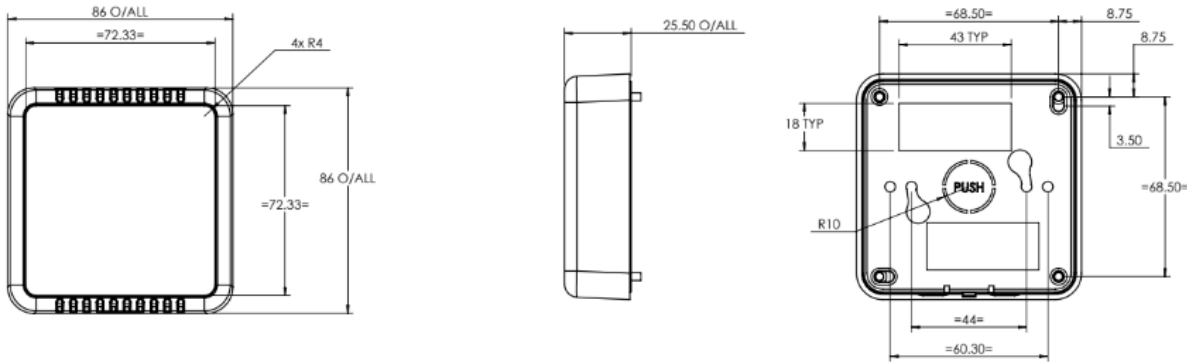
DATA SECURITY

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 / Weight	86(W)*86(D)*40(H) mm / 200 grams
DEVICE SUPPLY VOLTAGE	9 - 24 VDC
POWER CONSUMPTION	14.5 - 15 Watts
OPERATING AMBIENT TEMPERATURE	-20 °C to 50 °C
OPERATING HUMIDITY	15% - 95% RH
BODY MATERIAL	ABS UL94 - V0 construction
MOUNTING METHOD	Wall
COMMUNICATION	4-20 mA/ 0 - 5 VDC / 0 - 10VDC / Modbus RTU/ Wi-Fi
DATA STORAGE	Inbuilt memory backup, up to 24h
DEVICE/APP	HTTPS Protocol
DATA OVER THE NETWORK	TLS Secured- AWS Certificate

ENCLOSURE VIEWS AND DIMENSIONS:



DIMENSIONS:

86mm X 86mm X 40mm

WEIGHT:

200 gm

INSTALLATION:

Mounting:

Securely mount the device on a wall using the provided screws and anchors.

Wiring:

Connect the power supply (9-24V DC) to the power terminals.

Connect the RS485 communication lines (A, B) to the corresponding terminals on the device.

Initial Setup:

Ensure the device is powered on.

Configure the Modbus RTU settings as per your network requirements.

COMMUNICATION PROTOCOL:

The device communicates using Modbus RTU protocol over RS485 or gives electrical output in 4-20mA/ 0-5V / 0-10V. Below are the details of the holding registers used to read data and configure the device.

MODBUS REGISTER LIST:

- Default RS485 Comm Parameters: 115200 baud, 8 data bits, no parity, 1 stop bit.
- Default Modbus-ID for Modbus-RTU over RS485 communication is: 45.
- Use Function Code 3(Read Holding Registers) to read values and Function Code 6 (write Single Register) to write values

Address	Bytes	Range	Defaults	Register & Description
1-3	3	-	-	Serial Number: Read only
5	1	-	-	Firmware Version: Read only
7	1	0-255	45	Modbus Device Address: You can read/change.
8	1	0-4	4	Baud rate: 0=9600baud, 1=19200baud, 2=38400baud, 3=57600baud, 4=115200baud
9	1	1-3	3	Analog Output jumper setting: 1=0-10V, 2=0-5V, 3=4-20mA (Read Only)
11	2	-	-	Cl2 Reading in PPM x 10. Can be written to adjust Cl2 calibration.
12	1	-	0	0 - When there are no alerts {PPM Value below Threshold} 1 - When there is alert (PPM Value above Threshold)
13	2	-	0	Cl2 AO Low Range (PPM): Read only
14	2	-	1000	Cl2 AO High Range (PPM): Read Only
15	1		50	Alert Threshold Read/Write in PPM
24	-	-	-	RTC date parameters - 1239: year, 1240: month, 1241: day, 1242: day of week
25	-	-	-	RTC time parameters - 1243: hour, 1244: minute, 1245: second.

OPERATION:

- Reading CO Concentration
- The current CO concentration can be read from register address 0x0010.
- Setting Alarm Threshold
- The alarm threshold can be configured by writing to register address 0x0015.
- Configuring Communication Settings
- The Low & High Range, Baud Rate, and Device ID bits can be configured by writing to the respective registers (0x0013, 0x0014, 0x0009, 0x0006).

MAINTENANCE:

- Periodic calibration may be required for maintaining accuracy.
- Cleaning
- Clean the sensor area with a dry cloth. Do not use any solvents or liquids

REGULATORY COMPLIANCE

CERTIFICATIONS	CE, RoHS
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