CO2 Monitoring and Control in Fermentation and Carbonation Processes

In beverage production, carbonation, and tank storage processes, CO_2 plays a vital role in product quality and carbonation control. Accurate monitoring of this gas is essential for both product quality control and workplace safety. Excess CO_2 beyond safe limits in enclosed spaces can create a hazardous environment, while precise control of CO_2 for carbonation, gas collection, and process ventilation requirements leads to greater efficiency and cost savings.

- Controlled tank environment ventilation
- Detection of CO_2 gas accumulation
- Assistance towards better process control
- CO_2 supply in fermentation processes
- Increased workplace safety in closed spaces
- Suitable for beverage, carbonation, and soft drink industries

RC2-D; CO_2 Monitoring

Direct Ventilation Control for Classrooms and Educational Halls

In educational environments, CO_2 levels rise quickly, and this can negatively impact students' learning, attention, and performance. CO_2 reduces concentration, causes fatigue, and can lead to headaches. By continuously monitoring CO_2 levels, RC2-D provides an intelligent ventilation control solution to ensure a healthier environment and improve learning outcomes.

- Monitors CO_2 levels in real time in classrooms and educational halls
- Adjusts ventilation based on CO_2 levels
- Supports healthier learning environments for students and teachers
- Works with smart and building management systems
- Easy installation and maintenance
- Helps reduce energy costs by optimizing ventilation

RC2-D: CO_2 Monitoring and Control

Enhanced Freshness Preservation of Products in Cold Storage

In cold rooms, CO_2 levels are closely monitored and controlled to maintain the ideal environment for product freshness. By accurately measuring CO_2 concentration, the system regulates ventilation and gas levels, preventing the buildup of excessive CO_2. This helps extend the shelf life of products, reduces spoilage, and ensures optimal quality and freshness. It is especially important for perishable goods such as fruits, vegetables, and other sensitive products, and plays a vital role in maintaining safe and efficient cold storage conditions.

- CO_2 and temperature sensors
- Humidity and temperature control
- Controlled Atmosphere (CA) capability
- Supports multiple sensors and devices
- Easy installation and maintenance
- CO_2 display in real time in the cold room

RC2-D; Precise CO2 Monitoring for Shelf Life Preservation and Prevention of Spoilage of Stored Goods

In goods storage warehouses, controlling air quality is vital for preserving product quality and safety. In closed warehouses, increased CO2 levels are a sign of insufficient ventilation and accumulation of stale or contaminated air. The RC2-D CO2 sensor, in addition to accurate environmental monitoring, helps warehouse managers make optimal ventilation decisions and prevent spoilage and loss of stored goods.

- Monitoring of temperature, humidity, and CO2
- Alert on abnormal CO2 increase
- Air quality control in closed warehouses
- Ventilation of stale and contaminated air
- Suitable for connection to central monitoring system
- Assistance in preserving quality of stored goods

RC2-D Series: CO2 Transmitter

Smart Breathing Monitor for Healthier Spaces and Better Performance

In indoor spaces, CO2 levels directly impact physical performance, decision-making speed, and overall well-being. When CO2 rises, mental fatigue, reduced focus, and discomfort can increase. The RC2-D Series, with advanced Swiss CO2 sensor technology, provides accurate and reliable monitoring. It helps you activate ventilation systems at the right time, ensuring fresh, clean air and a better environment for everyone.

Energy Saving

Reduce energy consumption by operating ventilation systems only when needed.

4-Relay Outputs

Control ventilation, alarms, and more with fully configurable outputs.

Drift Compensation

Automatic drift correction ensures long-term measurement accuracy.

Standalone Operation

Works independently without the need for a control system.

Modbus Protocol

Seamless integration with BMS systems for centralized monitoring and smart control.

Modern & Easy Installation

Sleek design and simple setup for any indoor environment.

RC2-D; Monitoring and Control of Air Quality in Medical and Therapeutic Environments

In hospitals, clinics, and laboratories, indoor air quality is critically important. These environments must be protected from infection risks and safety hazards. Rising CO^2 levels may indicate insufficient ventilation and reduced air quality. Accurate environmental condition monitoring helps improve safety in sensitive areas such as operating rooms, isolation rooms, and the most critical wards.

- Monitoring of temperature, humidity, and CO^2
- Monitoring of air quality in medical environments
- Increased safety for patients and staff
- Connection to HVAC or BMS systems in hospitals
- Suitable for clinics, laboratories, and high-occupancy wards
- Air quality monitoring in parking garages

RC2-D: Smart HVAC Control for Energy Optimization

In HVAC systems, the CO_2 sensor is used for Demand-Controlled Ventilation (DCV). When occupancy increases in a space, CO_2 levels rise, enabling the ventilation system to automatically adjust fresh air intake accordingly. This approach enhances indoor air quality while significantly reducing energy consumption by conditioning and supplying air strictly based on actual demand.

Features

- Modbus RTU Connection to BMS
- Simultaneous Monitoring of CO_2, Temp, Humidity & Pressure
- Smart Control of AHUs and Fan Coil Units
- Ideal for Commercial, Office & Industrial Buildings
- Improves Indoor Air Quality (IAQ)
- Energy Savings via Demand-Controlled Ventilation (DCV)

RC2-D

Accurate CO2 Control for Packaging Quality with Modified Atmosphere

PRECISION CO_2 MEASUREMENT
FOR MODIFIED ATMOSPHERE PACKAGING

Measurement Accuracy
±50 PPM ±3%

Fast Response
T90 < 30 s

Relay Outputs
Control of machines and process equipment

Wide Range
Accurate measurement in diverse ambient conditions

IP65 Protection
Resistant to dust and moisture

Easy Installation
Wall-mount or duct-mount design, low maintenance

The RC2-D CO2 transmitter, built on non-dispersive infrared (NDIR) sensor technology and intelligent algorithms, delivers accurate and stable measurement of CO2 gas concentrations in Modified Atmosphere Packaging (MAP) processes. With reliable performance and a user-friendly design, it helps you enhance product quality, safety, and shelf-life while keeping packaging costs under control.

RC2-D

Air Quality Monitoring in Multi-Level and Underground Parking Garages

In basement and underground parking garages, proper ventilation for personnel and exhaust gas control is essential. Gases such as CO and NO2 are the primary air pollutants. Rising CO2 levels can also indicate insufficient parking ventilation. Accurate monitoring of air quality, general ventilation control, and reduction of stale air consumption help select ventilation fan operating hours and reduce energy consumption.

1. Assistance in ventilation control
2. Monitoring of NO2 and CO sensors
3. Warning of unsuitable ventilation conditions
4. Energy consumption reduction with air quality control
5. Suitable for underground and basement parking garages
6. Monitoring of stale air in closed parking areas

High Accuracy | Reliable Performance | Reasonable Price

RC2-D: Smart CO2 Control To Improve Quality and Reduce Mushroom Crop Loss

In mushroom growing rooms, CO2 levels are one of the key factors affecting product quality. In different growth stages, an imbalance in CO2 concentration can lead to reduced sensitivity and increased susceptibility to diseases in mushrooms, as well as smaller size, lower quality, and less yield. The CO2 sensor helps you achieve stable and optimal CO2 levels in the growing room.

- Precise monitoring at different growth stages
- CO2 control for adjusting crop shape
- Reduces the likelihood of off-product
- Helps produce higher quality mushrooms
- Maintains optimal temperature and humidity for better environmental control
- Connects to fans, heaters, and automation systems

RC2-D

Increased Yield and Quality of Crops in Vertical Farms

In greenhouses, vertical farms, and plant growth chambers, CO2 is one of the most important factors for increasing photosynthesis yield. In these environments, light, temperature, nutrition, and CO2 must be accurately controlled in a fully integrated manner.

- Continuous CO2 control in the environment
- Increased vertical farm productivity
- Improved photosynthetic efficiency with precise control
- Optimization of temperature, humidity, and CO2
- Suitable for vertical farms and urban agriculture
- Connection to indoor farming automation systems

RAYA TECHNOLOGY

RC2-D; Managing Livestock and Poultry Halls Air Quality

In breeding halls and barns, air quality directly affects the health, growth, and welfare of the livestock. CO_2 accumulation in an enclosed and poorly ventilated space causes reduced feed efficiency, increased stress, and higher mortality. Continuous CO_2 monitoring alongside temperature and humidity control is a key tool for maintaining flock health and conditions.

- Reduced respiratory stress in birds
- CO_2 extraction based on permissible limits
- Suitable for automated ventilation systems
- Supports improved growth and reduced mortality
- Continuous monitoring of air quality inside the hall and manure drying
- Prevention of inadequate ventilation in enclosed halls

RC2-D:

CO2 Sensor for Ensuring Safety and Enhancing Personnel Efficiency

The RC2-D CO2 sensor is designed for industrial environments, featuring high accuracy, fast response, and long-term stability. It continuously monitors CO2 levels in the environment and provides real-time data to help ensure worker safety, optimize operations, and enhance personnel efficiency. The sensor is suitable for various industrial settings, especially in harsh environments with high dust, humidity, and vibration, ensuring reliable performance and long-lasting durability.

Advanced PASens® Technology
High sensitivity and fast response for accurate CO2 detection. **1**

Multiple Output Options
Supports analog, digital, and relay outputs for flexible integration. **2**

Built-in Pressure Compensation
Minimizes the impact of pressure changes on measurement accuracy. **3**

Rugged and Reliable Design
IP61 protection rating with resistance to dust and water splashes. **4**

Flexible Installation & Integration
Supports Modbus RTU protocol and 4–20mA / 0–10V outputs for easy PLC integration. **5**

Intelligent OLED Display
Provides clear readings and settings for easy monitoring and operation. **6**

RC2-D; Precise Measurement of Environmental Indices to Ensure Operational Stability of Sensitive Equipment

In server rooms and data centers, temperature and humidity control is of primary importance, but CO2 monitoring is also vital for indoor air quality management and ventilation. In enclosed spaces or control rooms where staff are present, rising CO2 levels indicate insufficient ventilation. The CO2 sensor can connect to the BMS system and, alongside temperature and humidity, provide comprehensive environmental monitoring.

- Server room air quality monitoring
- Simultaneous monitoring of temperature, humidity, and CO2
- Environmental condition control in control rooms
- Assistance in data center fresh air management
- Connection to BMS and central monitoring system
- Increased stability of equipment working environment and personnel comfort

RC2-D Smart Controller

Equipped with internal relay for automatic ventilation and damper control

In greenhouses and indoor farms, accurate measurement of carbon dioxide (CO_2) concentration is essential for photosynthesis and crop growth. The RC2-D intelligent controller precisely monitors CO_2 levels in the air and automatically adjusts the ventilation and exhaust systems when necessary. This keeps the CO_2 concentration within the ideal range, ensuring stable CO_2 levels, optimal photosynthesis, and better plant growth. The result is healthier plants, higher yields, and more efficient, intelligent greenhouse management.

- High reliability and long lifespan for your investment
- Accurate and fast response to changes in greenhouse conditions
- Ventilation and exhaust systems, cooling and heating control
- CO_2 concentration control for optimal plant growth
- Real-time display of temperature, humidity, and CO_2 levels
- Connects to PLC and BMS systems for intelligent management

RC2-D; CO2 Leakage Detection and Carbonation Control

Safe Carbonation Production Line

In beverage and carbonation production plants, CO_2 gas is widely used for the carbonation of products. However, CO_2 gas is heavier than air and hazardous, and a leak can quickly build a dangerous concentration in the workspace. Therefore, CO_2 sensors in these environments are used for leakage detection, alarm activation, controlled area ventilation, and safe environment monitoring.

- **CO_2 Leakage Detection**
- **Controlled Area Ventilation**
- **Alarm Activation (Visual & Audible)**
- **PLC Control**
- **Safe Environment Monitoring**
- **Automatic Ventilation**

RC2-D: CO2 Monitoring and Ventilation Control in Tunnels and Underground Spaces

In tunnels, underground passageways, and enclosed spaces, the accumulation of exhaust gases and suspended dust particles poses a serious safety hazard. Rising CO2 levels can indicate poor air circulation and reduced air quality. In emergencies such as fires, monitoring plays a far more critical role, enabling safe evacuation and smoke and pollutant extraction through controlled ventilation.

- Warning in abnormal conditions
- Enhanced safety for personnel and drivers
- Monitoring of air quality in enclosed underground spaces
- Control of fresh air and tunnel ventilation system
- Suitable for tunnels, underground passageways, and enclosed spaces
- Central control system connectivity via Modbus