How a US Retailer Made CO2 Safety Part of Its Connected Building Strategy

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The Sniffer Modbus gateway enables CO2 safety systems to share real-time data with Building Management Systems and other monitoring platforms

When a major US convenience store operator wanted to centralise CO2 safety management across approximately 1,500 US convenience stores and gas stations, LogiCO2 deployed its Sniffer Modbus gateway to connect CO2 safety data directly to the customer's existing Building Management System (BMS).

A Safety Challenge at Scale

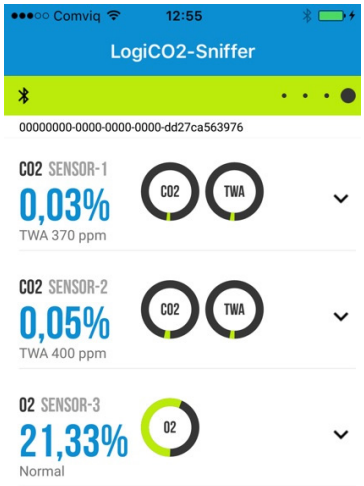
For an operator with sites in different locations, managing CO2 safety centrally is not straightforward. Sensors detect, alarms sound locally, and someone on site responds. That works well enough at a single location, but across a portfolio of sites, it leaves maintenance teams responding reactively to events after they are triggered on site, rather than proactively staying ahead of them.

That was the challenge the US convenience store operator brought to LogiCO2 around five years ago. The customer needed CO2 safety monitoring across a large portfolio of US convenience stores and gas stations, and already had a BMS in place to manage all its facilities. The goal was simple: make CO2 safety data part of that existing infrastructure, not a separate system sitting alongside it.

The Solution

The solution was to add a Sniffer-Modbus to the existing MK9 CO2 safety system.

The Mk9 operates as a fully independent safety system at each site, detecting CO2 levels and triggering local visual and audible alarms as needed. The Sniffer Modbus was added specifically to extend that safety data beyond each store's walls and into the customer's digital building infrastructure.



The Sniffer Modbus is a gateway for reading out measuring values and status from LogiCO2's CO2 and O2 Safety Systems. It is a read-only device that passively draws data from the safety system without touching any alarm logic or local outputs, and communicates via Modbus RTU over RS485 to external systems. The Sniffer Modbus listens to communication between the sensors and the system and passes that data to the customer's BMS.

The device is powered directly from the LogiCO2 Safety System with no additional power supply required. It connects via a standard LogiCO2 connection with clearly labelled cables for the sensor side and the external system side. Configuration is handled through two DIP-switch banks on the PCB, allowing the installer to set the Modbus ID address, baud rate, parity, and which sensor IDs to monitor. The unit requires no maintenance once installed.

Benefits to the Customer

Since implementing this solution, facility managers, maintenance teams, and control rooms can see live CO2 readings and alarm statuses across every connected site from the same platform they use to manage the rest of each building, without needing to physically check every unit, and react faster without waiting for a call from the installation site.

The customer can also access live CO2 concentration values, time-weighted average readings, alarm flags for both high and low thresholds, temperature readings, and system status indicators covering communication state and fault conditions, all from a single central system. For a multi-site operator, this provides a more standardised approach to managing CO2 safety across the entire portfolio. The same data also supports reporting, internal audits, maintenance follow-up, and safety documentation within the systems the customer already uses for compliance purposes.

A key advantage of the Sniffer Modbus is that it adds value to a customer's existing systems, whether that is a BMS, SCADA, HVAC, refrigeration, or energy monitoring platform, without requiring changes to the system itself.

Beyond Retail

The challenge is not unique to retail. Breweries, wineries, fast-food restaurants, cold rooms, laboratories, and production facilities all require CO2 safety monitoring, and for each, there is an opportunity to make that data part of smart building operations rather than a locally managed function.

"Consider an operator running 250 fast-food restaurants. The ability to centralise CO2 safety data across that entire portfolio, rather than managing it site by site, becomes increasingly valuable as the operation grows. If CO2 safety monitoring is already in place, adding the Sniffer Modbus is a logical next step toward a more connected and better managed operation," says Kristoffer Eklund Cuestas, Business Manager, LogiCO2.

As more buildings become connected, customers increasingly expect their safety systems to communicate with existing digital infrastructure. LogiCO2's Sniffer Modbus gives building automation partners, facility teams, and multi-site operators a simpler way to do that, transforming CO2 safety from a local alarm into an integrated part of smart building operations.

Video: LogiCO2's Solution in Action

Watch our CO2 Awareness documentary on YouTube and discover how Alcoholera de la Puebla transformed fermentation safety using advanced CO2 detection technology. [Click here]

YouTube

LogiCO2 Safety System Enables Safe Fermentation at Historic Spanish Winery, Alcoholera

To find out how the LogiCO2 Sniffer Modbus could work within your existing building management infrastructure, visit our website www.logico2.com. Or if you have any questions or inquiries, feel free to contact us at info@logico2.com or +46 (0)31-695317.