

AirySense™-CO₂: SMART CARBON DIOXIDE SENSOR

General Description:

AirySense™-CO₂ is a Smart CO₂ Sensor which can be connected on standard Building Automation Networks. These can be used for monitoring ambient environmental conditions for monitoring and control.

Applications:

- ASHRAE prescribes the Indoor Air Quality in the form of CO₂ Levels to be within 1000PPM for human productivity to be optimal. AirySense™-CO₂ can be used for monitoring of ambient CO₂ in Buildings and Complexes, Warehouses, Cold Storage areas, Hospitals, Food and Pharmaceutical Industries, etc. giving an indication of the Indoor Air Quality.
- Demand Control Ventilation (DCV) reduces the throttle of the HVAC system when humans are not present and achieves energy efficiency. CO₂ Level in the Zone is an effective indicator of the human presence and hence is important to implement DCV. AirySense™-CO₂ can be integrated with Zone Thermostats for implementing DCV and achieving energy efficiency.



Salient Features:

- Provides smart monitoring of ambient CO₂ in clean and unclean environments.
- Based on NDIR Absorption based sensing principle providing best in class accuracy, stability, low power consumption and fast response
- AirySense™-CO₂ communicates on standard Modbus RTU protocol on RS485 multi drop networks with field configurable device address and baud rates
- Adding more sensors is very easy; the network can support up to 30 more other AirySense™ sensors or iOTA™ remote IO modules.
- The smart sensor can be optionally provided with a local display of the real time reading
- Sensor can be optionally provided with a power relay for auxiliary switching and control of equipments based on CO₂ levels in the zone.
- AirySense™-CO₂ is designed with an aesthetic enclosure suitable for wall mount.

Specifications:

CO₂ Measurement:

Range	0 – 2000 PPM
Resolution	1 PPM
Accuracy	±50 PPM ± 3% of Reading
Non-Linearity	< 1% of FS
Response Time	30 – 45sec
Operating Pressure Range	950mbar to 1050mbar
Pressure Dependence	0.13%/mmHg
Calibration	Auto calibration

Relay Output:

Channels	01 SPST-NO
Contact Rating	230VAC / 30VDC, 3A
Response Time	50ms

Setpoint for Switching	600 PPM to 2000 PPM
Hysteresis	100 PPM below setpoint
Connectors	Screw Terminals

Serial Communication:

Protocol	Modbus RTU
Device ID	User configurable from HMI
Physical Layer	RS485 Half Duplex
Maximum Devices	31
Maximum Length	Up to 1000m
Baud Rate (BPS)	9600, 19200, 38400, 57600
Protection	Short Circuit
ESD	Compliant as per IEC 61000-4-2 Level 3 (Contact Discharge: 8kV, Air Discharge: 15kV)
Connectors	Screw Terminals

Power:

Input Voltage	24V AC/DC ± 10%
Power Consumption	< 200mW
Protection	Overvoltage, Short Circuit, Reverse Polarity
ESD	Compliant as per IEC 61000-4-2 Level 3 (Contact Discharge: 8kV, Air Discharge: 15kV)
Connectors	Screw Terminals

Mechanical:

Enclosure	Aluminum Sheet, Powder coated
Mounting	Wall Mount
Dimensions	88 (W) x 125 (H) x 30 (D) (mm)
Weight	~ 200g

Environmental:

Operating Temperature	0 to 50 °C
Operating Humidity	0 to 95 %RH
Ingress Protection	IP 20

Order Code:

Part Number	Display	Relay	Protocol
AirySense-CO ₂ / MB	--	--	Modbus RTU
AirySense-CO ₂ / MB-R	--	✓	Modbus RTU
AirySense-CO ₂ / MB-D	✓	--	Modbus RTU
AirySense-CO ₂ / MB-DR	✓	✓	Modbus RTU

Contact:

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