



**OPTIMAL
CONTROLS**

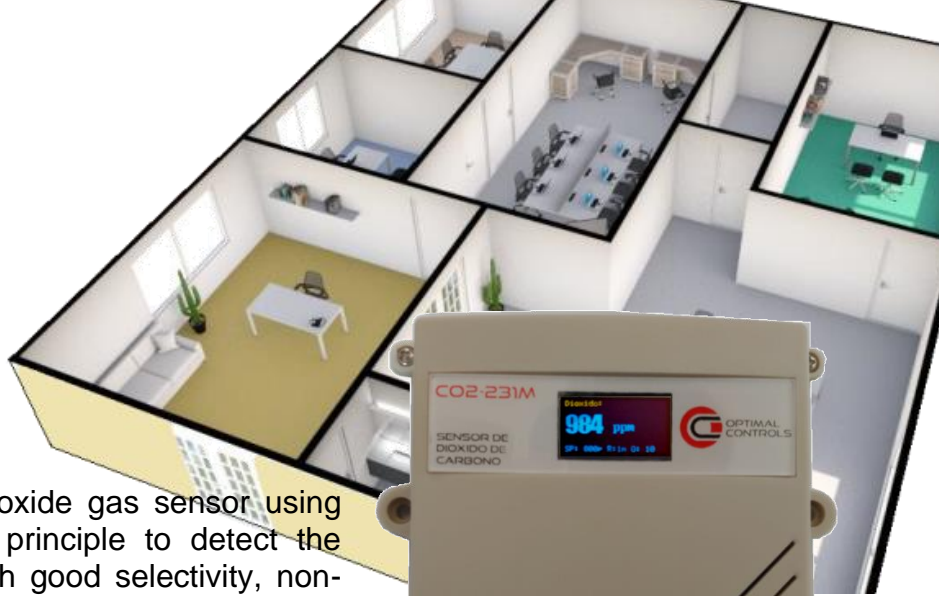
Carbon Dioxide Sensor (CO2)

CO2-231M

The CO2-231M is a Carbon Dioxide gas sensor using non-dispersive infrared (NDIR) principle to detect the existence of CO2 in the air, with good selectivity, non-oxygen dependent and long life.

This Sensor Series comes in Different Output options: Relay Output (on/off), Analog output (4-20mA) And Modbus RTU Communication port (RS-485).

This Sensor also comes with a OLED display that shows gas concentration level in real time.



CO2-231M

Applications:

- HVAC refrigeration.
- Indoor air quality monitoring.
- School.
- Air cleaning.



Features and Benefits:

- Economical.
- Comes Calibrated from Factory (2 points).
- Long Sensor Life.
- OLED display for easy read gas concentration levels, and output status.
- High sensitivity, high resolution, Automatic Zero Calibration.
- Anti-Water vapor interference.
- No poisoning.
- For Modbus Version, Sensors have an option for Temperature and Humidity monitoring through communication.
- Different Power Supply Options: 24V or 100-240 Volts for compatibility with any installation.

Model Selection:**CO2-231M-xx-yyy-z-o**

Output: MB=Modbus

RL=Relay

AN=4-20mA (3-wire)

Power Supply: 220 = 100-240v

024 = 24V AC/DC(***)

Relay Option: R = Relay Option (*)

Temp. & Humidity Option: O = Includes Option T&H (**).

(*) Option available for MB and AN models Only.

(**) Option available only for MB models.

(***) 24AC/DC for MB and RL Models. 24DC for AN model only.

Selection Example: CO2-231M-MB-220

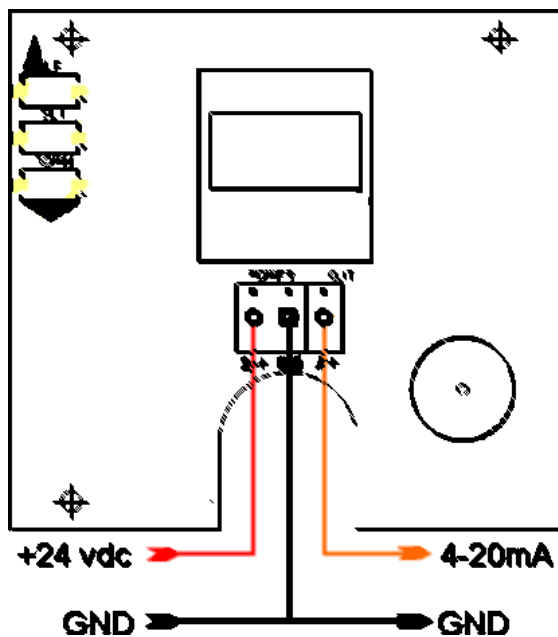
(CO2 Sensor with Modbus output, power supply:100-240v.)

Product Specifications:

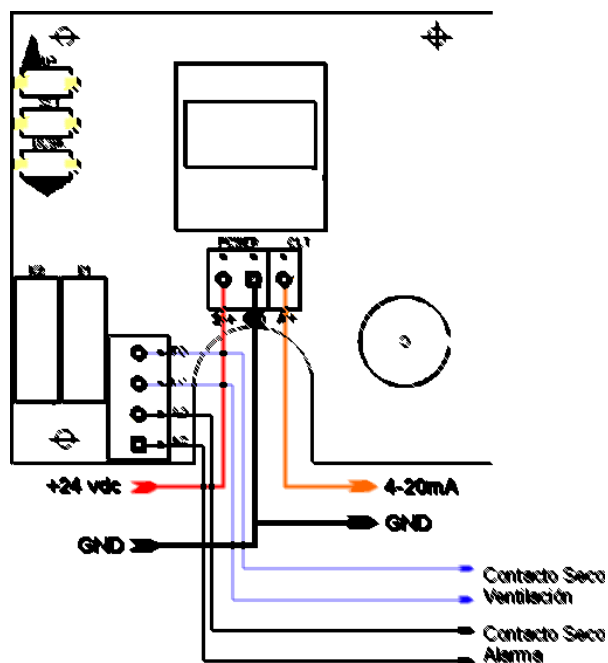
Sensor Type:	non-dispersive infrared (NDIR) principle.
Power Supply:	Option 220: 100-240 Vac, 50/60HZ, 3VA. Option 024: 24Vdc/ac, 3VA. (24VDC model AN)
Dimensions:	Wide: 90mm, Height: 85mm, Depth: 41mm
Operating Conditions:	0° to 50°C, 0% to 90% HR (non-condensing).
Range:	0 – 2000 ppm, \pm 50ppm (3% reading value).
Automatic Baseline Correction (ABC logic function):	The sensor itself do zero-point judgment and automatic calibration procedure intelligently after a continuous operation period. The automatic calibration cycle is every 24 hours after powered on. The zero point of automatic calibration is 400ppm
Response Time:	<120 seconds. (Preheat Time: 3 minutes)
Life Expectancy:	More than 5 years.
Output Relay:	Relay 1: 100 to 1800ppm Relay 2: Relay 1' Value plus 200ppm.
Relay Output:	2 x RELAY 5A,250VAC (resistive).
Wiring Connections:	Screw terminal block (12-22 AWG)
Protection Circuitry:	MB: Overcurrent protection, voltage surge in comm port, and short Circuit. AN: Overcurrent and reverse connection. 024: Reverse polarity Protection.
Communications option:	1 x MODBUS RTU RS-485, 9600 ó 19,200 bps, Format: 8N1.
Temperature and Humidity option:	Temperature range: -40° a 80°C \pm 0.5°C. Humidity range: 0-100%HR. \pm 2%.

Electrical Connection:

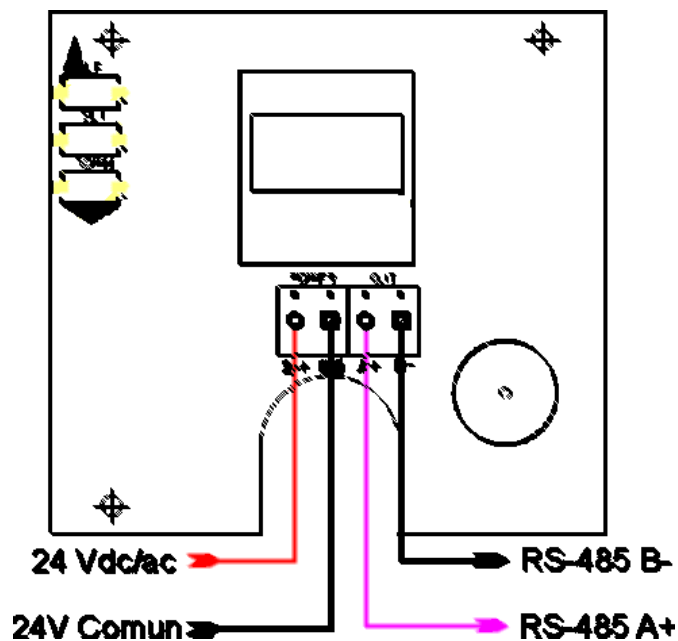
Model CO2-231M-AN-024 (4-20mA):



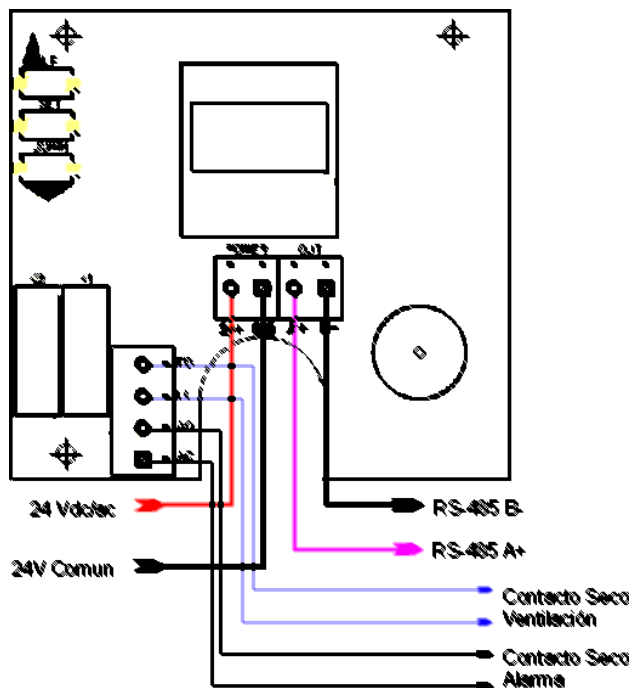
Model CO2-231M-AN-024-R (4-20mA with relay output):



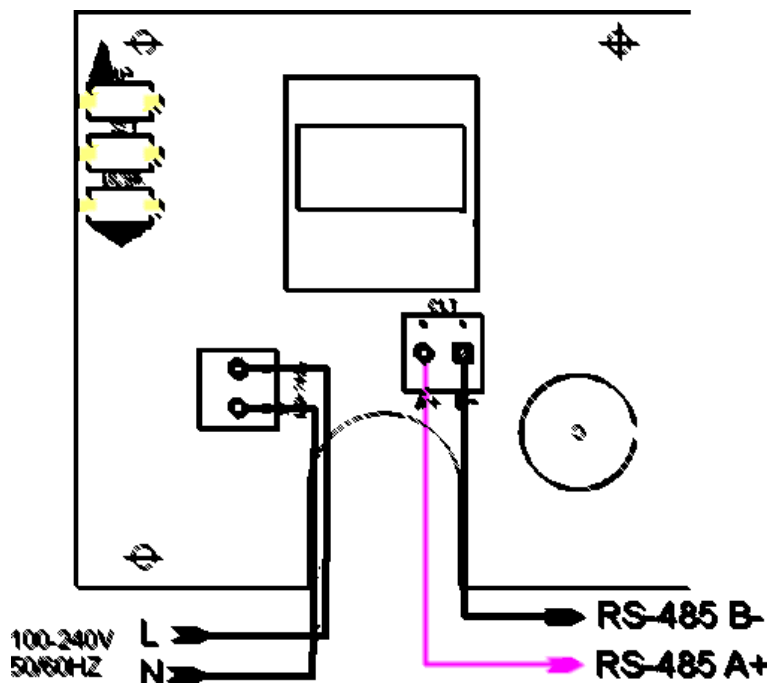
Model CO2-231M-MB-024 (Modbus 24V):



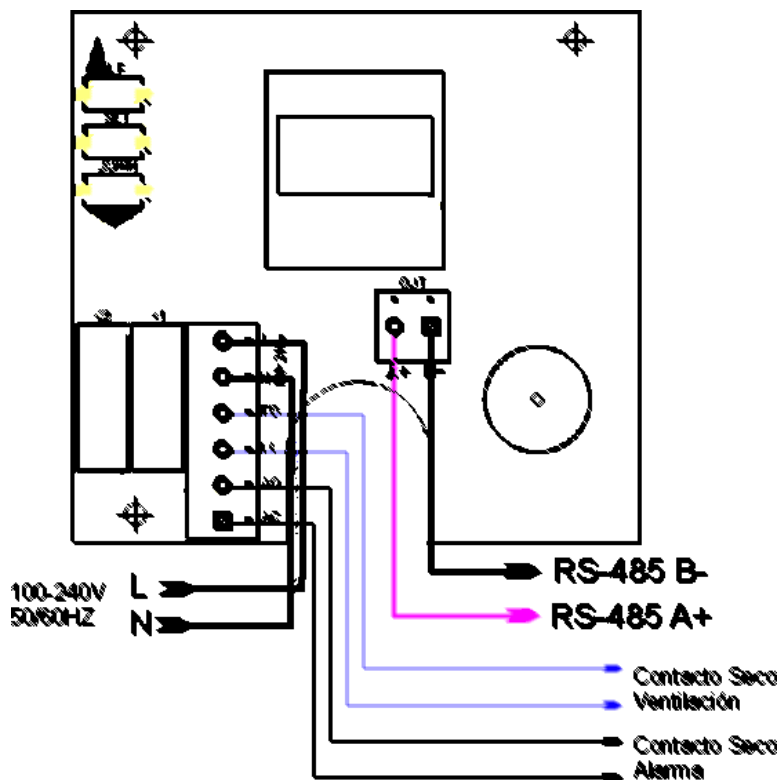
Model CO2-231M-MB-024-R (Modbus 24V with Relay output):



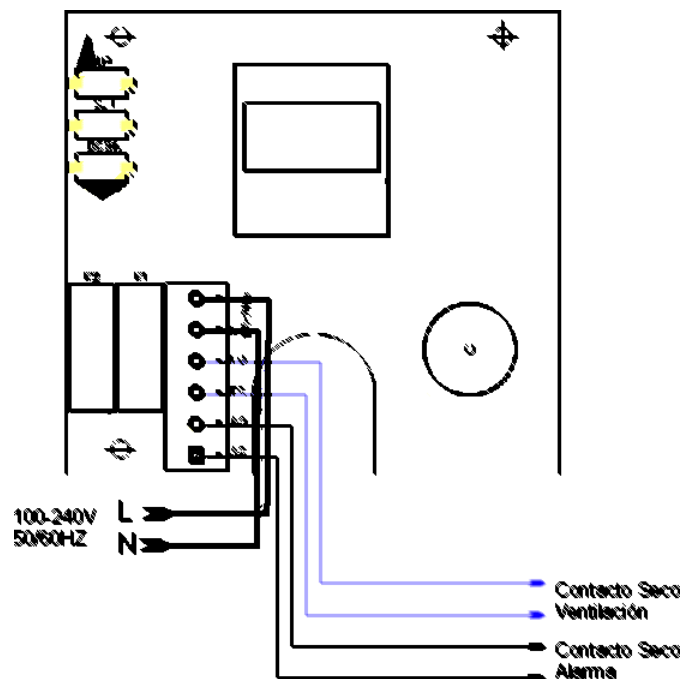
Model CO2-231M-MB-220 (Modbus 220V):



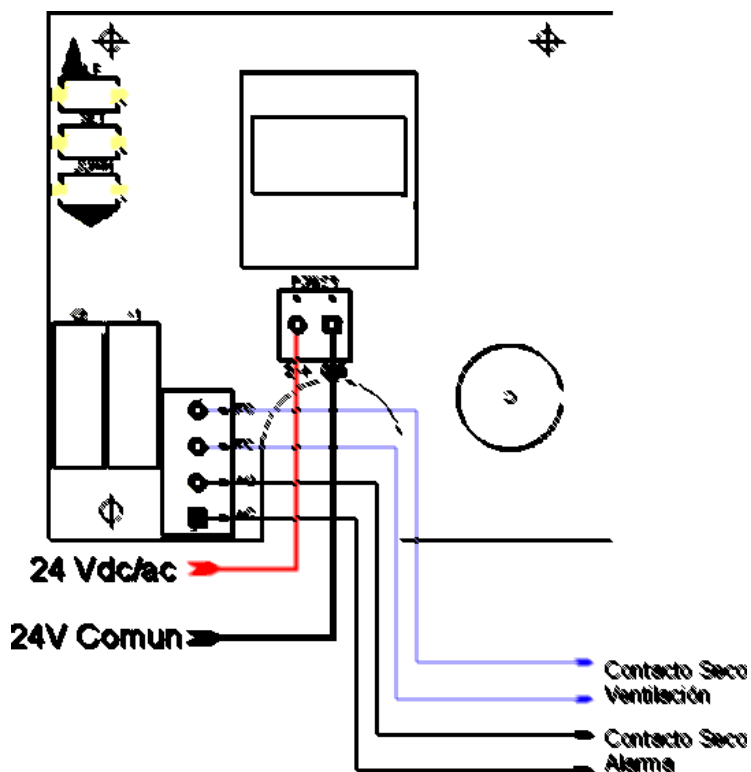
Model CO2-231M-MB-220-R (Modbus 220V with Relay output):



Model CO2-231M-RL-220 (Relay output 220V):



Model CO2-231M-RL-024 (Relay output 24V):



Notes:

- The sensor should be away from heat, and avoid direct sunlight or other heat radiation.
- Do not use the sensor in the high dusty environment for long time.
- Prevent the sensor from excessive impaction or vibration.