

CLCMNA172B Wall Module

Product Data & Installation Instructions



GENERAL

The CLCMNA172B Wall Module contains a room air quality sensor suitable for measuring air quality in rooms, offices, and production bays. It can be used to control ventilation plants. It detects unpleasant odors, tobacco smoke, and vapors emitted by such materials as furniture, carpets, paint, glue, etc. As proven in practice, this device detects those substances typically present in air having a poor quality, some of which may otherwise go undetected by the room occupants, themselves.

FUNCTION

The CLCMNA172B contains a heated tin dioxide semiconductor sensor, the electrical conductivity of which varies in proportion to the concentration of reducing agents in the ambient air. This leads to a voltage at the measuring element which is amplified to an output voltage of 0 to 10 Vdc.

The following particles and gases can be detected: cigarette smoke, hydrogen (H₂), ethanol (CH₃-CH₂-OH), isobutane (C₄H₁₀), carbon monoxide (CO), methane (CH₄), etc. The CLCMNA172B does not measure or indicate the concentration of individual gases, and thus cannot be used for monitoring or controlling specific substances.

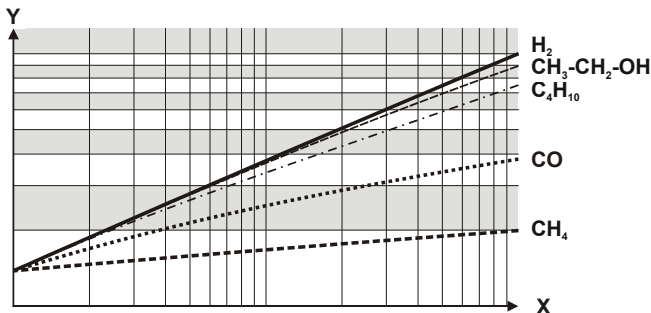


Fig. 1. Gas conc. (X-axis) vs. output voltage (Y-axis)

FEATURES

- Measurement of a variety of air quality factors
- Output signal: 0...10 Vdc, indicated by yellow status LED on front cover
- Trimming potentiometer to adjust output signal
- Easy installation and wiring connection

SPECIFICATION

Supply voltage	15...30 Vdc / 24 Vac (+/-20%)
Power consumption	< 1 W
Output signal	0...10 Vdc (increases as air quality worsens); adjustable using the trimming potentiometer
Min. impedance of load	5 k Ω (at output)
Weight /Dimensions	approx. 125 g / see Fig. 3
Electrical connection	Screw terminal block for conductors up to 1.5 mm ²

Air Quality Sensor

Sensitivity/Linearity see Fig. 1

Ambient Limits

Transport / storage temp.	-30...+60 °C
Operating temperature	0...+50 °C
Humidity	5...95% rh, non-condensing

Safety

Protection class	III as per EN60730-1
Protection standard	IP30 as per EN60529
Flame retardant	Plastic ABS, V0 as per UL94

INSTALLATION

All wiring must comply with local electrical codes and ordinances or as specified on installation wiring diagrams. Wall module wiring can be sized from 0.34 to 1.5 mm², depending on the application. The max. length of wire from a device to a wall module is 300 m. Twisted pair wire is recommended for wire runs longer than 30 m.

CAUTION

Low-Voltage Equipment.

Risk of equipment damage.

The 24 Vac power source for this product must be a safety isolating transformer. To conform to Class III restrictions, transformers must not be larger than 100 VA. A transformer that is CE certified and meets the Low-Voltage Device (LVD) requirements must be used in Europe for all installations of this product.

Cover Disassembly

The sub-base mounts separately for ease of installation; to disassemble the cover and the sub-base, see Fig. 2.

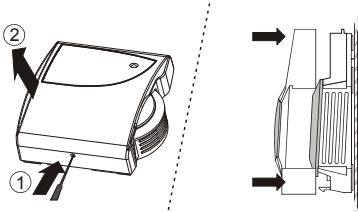


Fig. 2. Cover disassembly / assembly

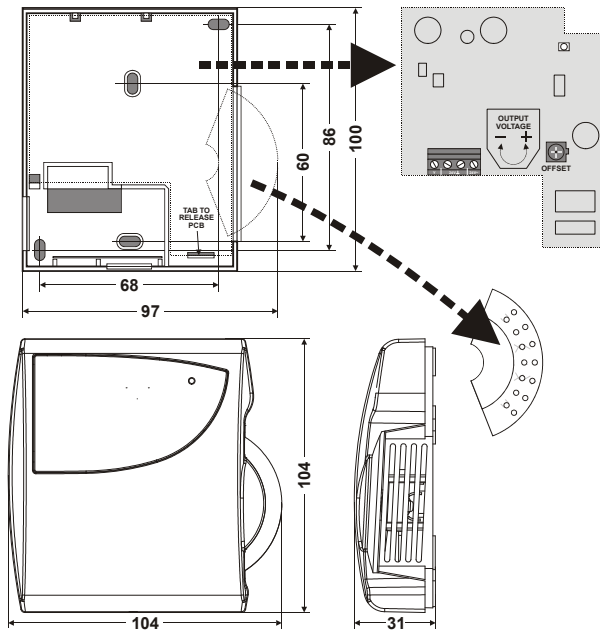


Fig. 3. Dimensions, mounting holes (mm)

Positioning

To avoid falsifying the measuring results, install at sites where typical air quality prevails. Avoid direct exposure to sunlight and drafts.

If mounting on a standard flush box, the end of the installation tube in the flush box must be sealed so to avoid any draft in the tube (which would falsify measuring results).

To allow free airflow to the air quality sensor, maintain a mounting clearance of approx. 10 cm to right of module.

Mounting Procedure

1. The cover of the wall module is fixed by a tab on the underside of the unit. Disassembly: see Fig. 2.
2. Mount the sensor onto the wall outlet box or bore wall holes (see Fig. 3) using appropriate screws.

IMPORTANT

Screw-type terminal blocks are designed to accept no more than one 1.5 mm² conductor.

3. Connect the wires to the terminal block as follows:
 - a) Strip 5 mm of insulation from the conductor.
 - b) Insert wire in required terminal location (see Fig. 3) and tighten the screw to complete the termination.
4. Adjust the trimming potentiometer offset (see below).
5. Remount cover (Fig. 2) and ensure tab is engaged.
6. The sensor is now operational. When the air quality deteriorates, the voltage of the output signal will rise.

Offset Setting

After mounting the device, adjust the output signal according to expected ambient conditions and individual preferences. This is done using the trimming potentiometer located on the sensor board (see Fig. 4). The offset of the output signal is increased or lowered using this trimming potentiometer.

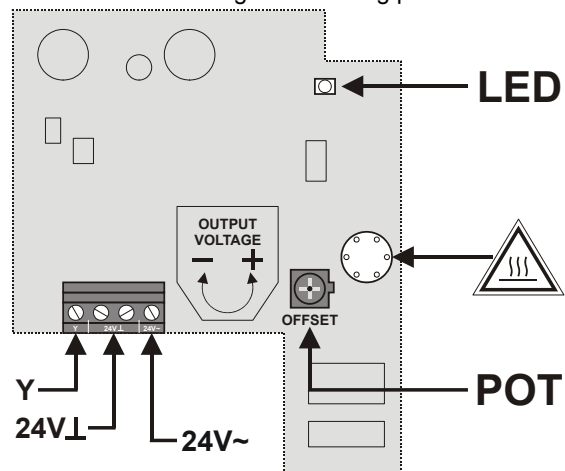


Fig. 4 Wiring and POT (trimming potentiometer)

- Turning the trimming potentiometer clockwise (CW) decreases the output signal (min. brightness is reached at an output signal of 1.5 V).
- Turning the trimming potentiometer counterclockwise (CCW) increases the output signal (max. brightness is reached at an output signal of 9 V).

Adjusting Trimming Potentiometer Offset

1. Connect sensor and switch operating voltage on.
2. Ensure good air conditions close to the sensor (by means of ventilation, etc.).
3. After approx. 30 minutes of operation, verify the output signal. The voltage level should lie in the range 1...3 V. Correct a too-high or too-low voltage using trimming potentiometer: The potentiometer should be turned to CCW until the yellow status LED is almost extinguished. The output signal will then amount to approx. 1.5 V (max. brightness is reached at 9 V).

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