

Honeywell

C7364A,B TVOC Air Quality Sensor

SPECIFICATION DATA



C7364A



C7364B

APPLICATION

The C7364 indoor air quality sensors use an advanced MEMS metal oxide semiconductor sensor to detect poor air quality. The sensor reacts quickly to detect a broad range of VOCs such as smoke, cooking odors, bio-effluence, outdoor pollutants and from human activities. The sensor captures all VOC emissions that are completely invisible to CO₂ sensors.

The TVOC sensor emulates the human perception of air quality such as foul odors (stale) as compared to a CO₂ sensor and even detects odorless, potentially hazardous substances such as carbon monoxide.

FEATURES

- Measures total VOCs
- High sensitivity and fast response
- Stable long-term operation
- 0 to 2000 ppm CO₂ equivalent output signal
- Internal menu for easy setup
- Analog stepped output for relative air quality indication
- Linear output for logging and control
- Selectable 0-5 or 0-10 Vdc signal

SPECIFICATIONS

Sensor Technology: MEMS metal oxide semiconductor VOC sensor.

Measurement Range: 450-2000 ppm CO₂ equivalent or 0-100 % (menu selectable).

Drift Compensation: Automatic baseline correction.

Linear Output Signal: 0-5 / 0-10 Vdc (menu selectable) = 0-2000 ppm CO₂ equivalent.

Analog Stepped Output Signal: Three steps representing Good, Fair, and Poor air quality (each step is independently adjustable from 0-10 Vdc).

Output Resistive Load: 10,000 Ω minimum.

Programming and Selection: Via internal push-buttons and LCD menu.

Wiring Connections: Screw terminal blocks, 14 to 22 AWG.

Power Supply: 20-28 Vac/dc (non-isolated half-wave rectified).

Power Consumption: 35 mA max @ 24 Vdc.

Input Voltage Effect: Negligible over specified operating range.

Protection Circuitry: Reverse voltage protected, over voltage protected.

Operating Temperature: 32 to 122 °F (0 to 50 °C)

Operating Humidity: 5-95 % RH non-condensing.

Enclosure:

C7364A: Wall mount enclosure, White ABS IP30 (NEMA 1),
C7364B: Grey polycarbonate, UL94-V0, IP65 (NEMA 4X).

Certifications: CE, RoHS, FCC, ICES, Prop65.



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INTRODUCTION

The traditional measurement of CO₂ levels is often seen as limiting when compared to the total amount of volatile organic compounds (VOC's) present in the air that have a detrimental effect on the human perception of air quality. These indoor VOCs are hydrocarbons that originate mainly from bio-effluents (odors from human respiration, perspiration and metabolism) and vapors generated from building materials and furnishings. There are thousands of unique VOCs that may be present in indoor air that affect the air quality.

Table 1 lists some of the more common VOCs and their source.

CO₂ sensors have long served as an adequate air quality indicator with a defined range ppm output signal that is easy to set thresholds to. The American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Standard 62.1 (Ventilation for Acceptable Indoor Air Quality) is generally used in DCV applications because minimum ventilation rates are clearly defined based on occupancy and CO₂ sensors are then generally used to determine occupancy.

This system has worked for DCV system designers due to it's straight-forward design, predictable results and energy saving results. However, the control of indoor air quality based on CO₂ levels alone is not optimal for all applications because it ignores other air contaminants that are often present. Ventilation should react on demand toward all sources of contamination, not only CO₂.

Table 1. Typical Indoor Air VOC Contaminants.

Contamination Source	Emission Source	VOCs
Human being	Breath Skin Respiration and Perspiration Flatus Cosmetics Household Supplies Combustion	Acetone, Ethanol, Isoprene Nonanal, Decanal, a-Pinene Methane, Hydrogen Limonene, Eucalyptol Alcohols, Esters, Limonene Unburnt Hydrocarbons
Office Equipment Building Material Furniture Consumer Products	Printers, Copiers, Computers, Paint, Adhesive, Solvent, Carpet, PVC (Poly Vinyl Chloride)	Benzene, Styrene, Phenole Formaldehyde, Alkanes, Aldehydes, Ketones Toluene, Xylene, Decane

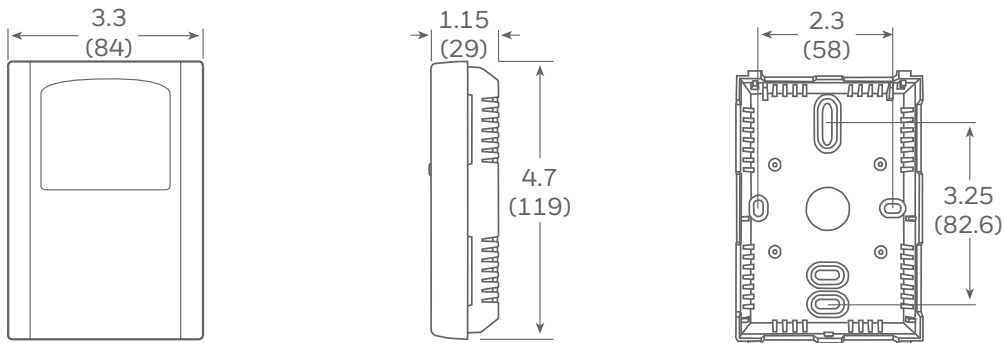


Fig. 1. C7364A dimensions in inches (mm).

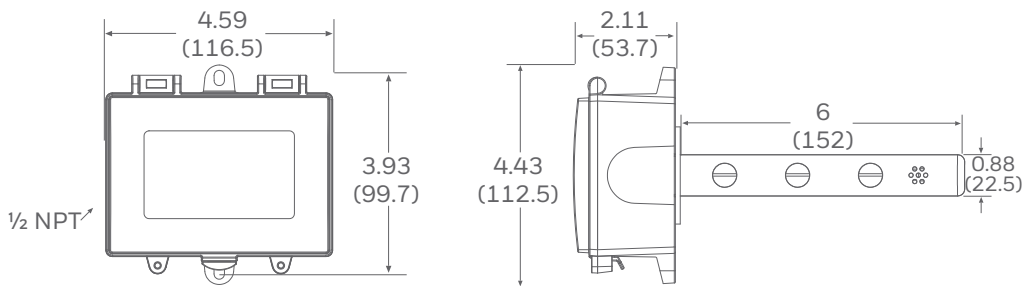


Fig. 2. C7364B dimensions in inches (mm).

TYPICAL INSTALLATION

C7364A

The C7364A series can be mounted directly to a single gang electrical box or directly to a wall. The backplate includes many mounting hole configurations to allow for mounting on a variety of electrical boxes.

The C7364A has a 4 wire configuration with a screw block terminal provided for connection to the Building Automation System.

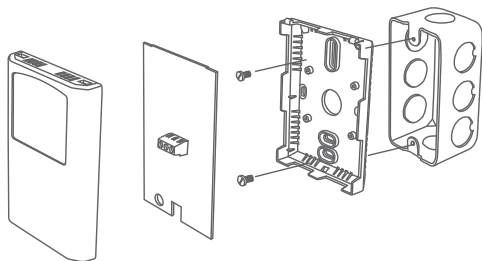


Fig. 3. C7364A Mounting.

C7364B

The C7364B duct type sensor installs on the outside of a return air duct with the sampling tube inserted into the duct. Mount the sensor in an easily accessible location in a straight section of duct at least five feet from corners and other items that may cause disturbances in the air flow. Avoid areas with vibrations or rapid temperature changes.

The enclosure provides mounting tabs for ease of installation.

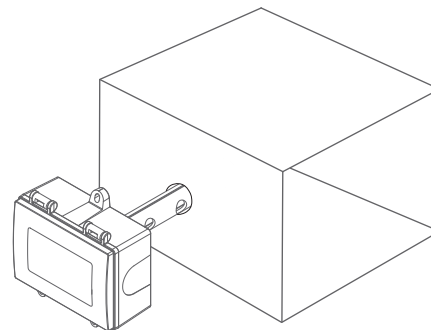


Fig. 4. C7364B Mounting.

TERMINAL IDENTIFICATION

Table 2. Terminal description.

Terminal	Function
PWR	Power Input
COM	Common
ASO	Analog Stepped Output (0-5 or 0-10 Vdc)
LINEAR	Analog Output (0-5 or 0-10 Vdc)

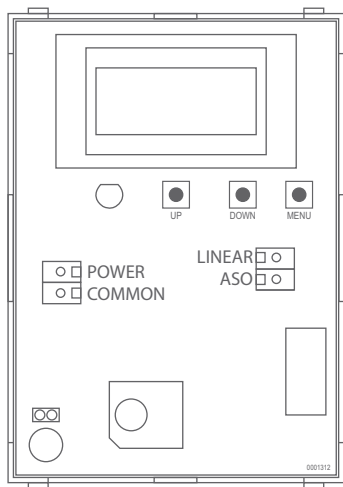


Fig. 5. C7364A Terminals.

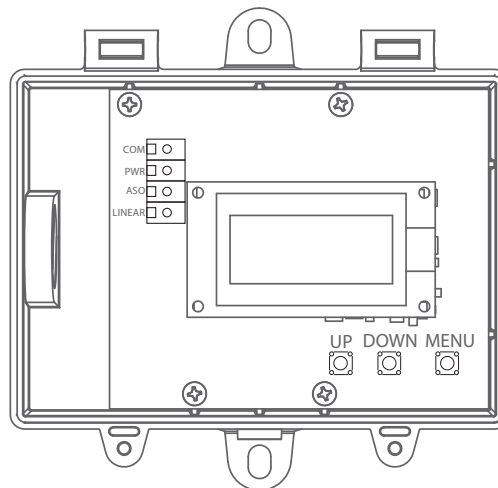


Fig. 6. C7364B Terminals.

C7364A,B TVOC AIR QUALITY SENSOR

Honeywell Building Technologies

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