

AIR QUALITY SENSOR

MODEL AIR4100

TYPICAL INSTALLATIONS:

Office Buildings
Smoke Evacuation such as Industrial
Governmental Garages
Diesel Smoke

Welding Shops
Gambling Casinos, Bars
Entertainment Establishments (Cigarette Smoke)
Washroom Ventilation Fans

GENERAL DESCRIPTION:

The AIR4100 Indoor Air Quality Sensor uses 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 AIR4100 provides a linear analog signal output of 0-5 or 0-10 VDC for connection to a building automation system as well as an analog stepped output of 0-10Vdc. Optional features such as a temperature sensor, manual override and adjustable relay output are available.



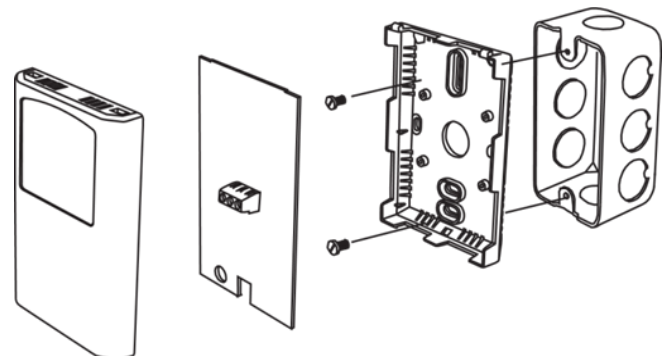
AIR4100

TYPICAL INSTALLATION:

For complete installation and wiring details, please refer to the product installation instructions.

The AIR4100 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 basic AIR4100 has a 4 wire configuration with a screw block terminal provided for connection to the Building Automation System.



STANDARD FEATURES:

- True Air Quality Monitoring
- Microprocessor Controlled
- Analog Stepped Output (ASO)
- 10 bit resolution
- Integral sensitivity adjustment
- Visual indication of air quality (Internal)

The Toxalert AIR4100 sensor works by monitoring the signal from the full spectrum sensor, judges the degree of pollution, and provides a configurable corresponding output signal. Configuration of the output (analog signal, stepped analog, relay, etc.) can be customized depending on the application. For the unit to perform efficiently it must work as a sensor/controller, i.e. must be able to act upon level changes. The output is represented as a signal 0—10 VDC output which has four user adjustable settings, corresponding to clean, low mid, and high levels. This output can be used to directly control an actuator, or be sent back to a Toxalert controller, a computer, or a direct digital controller.

The AIR4100 sensor can be configured to run auto or manual mode and has an integral sensitivity adjustment to provide the user the optimum settings to monitor a specified area. There are internal LED indicators to show microprocessor status and also a manual override feature to assist in installing the unit.

SPECIFICATION:

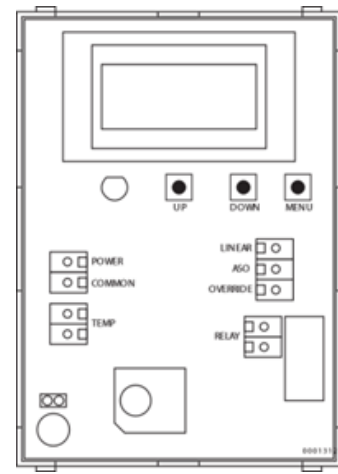
Sensing Technology	MEMS metal oxide semiconductor VOC sensor	LCD Backlight	Enable or disable via menu
Measurement Range	450-2000 ppm CO2 equivalent or 0-100% (menu selectable)	LED Indicator	Tri-color (Good = Green, Fair = Blue, Poor = Red), enable or disable via menu
Drift Compensation	Automatic baseline correction	Wiring Connections	Screw terminal blocks (14 to 22 AWG)
Power Supply	20-28 Vac/dc non-isolated half-wave rectified	Enclosure	Wall mount enclosure, White ABS
Consumption	35 mA max @ 24 VDC		IP30 (NEMA 1) 84 w x 119 h x 29 d mm (3.3" w x 4.7" h x 1.15" d)
Input Voltage Effect	Negligible over specified operating range	Weight	122 gm (4.3 oz)
Protection Circuitry	Reverse voltage protected, over voltage protected	Optional Override Switch	Front panel switch with FET
Operating Conditions	0-50 °C (32-122 °F), 5-95 %RH non-condensing		output, 30 VDC @ 50 mA max
Linear Output Signal	0-5 / 0-10 VDC (menu selectable) = 0-2000 ppm CO2 equivalent	Optional Relay Output	Form A contact (N.O. or N.C.) 2 Amps @ 140 Vac, 2 Amps @ 30 VDC (Relay action, trip point and hysteresis set via menu)
Analog Stepped Output Signal	Three steps representing Good, Fair and Poor air quality (each step is independently adjustable from 0-10 VDC)	Optional Temperature Sensor	Various thermistors and RTDs, 2-wire resistive output
Output Drive Capability	10 K _Ω minimum		
Programming and Selection	Via internal push-buttons and LCD menu		
Warm-up Time	5 minutes		
LCD Resolution	1 ppm / 1 %		
LCD Size	1.4" w x 0.6" h (35 x 15 mm) alpha-numeric 2 line x 8 characters		

PCB/WIRING INFORMATION

Terminal Function

POWER		Power input
COMMO	N	Power and Signal COMMON
LINEAR		Analog Output 0-5 or 0-10 VDC
ASO		Analog Stepped Output 0-10 VDC
OVERRIDE		Digital Output
*TEMP		Resistive Temperature Sensor
*TEMP		Resistive Temperature Sensor
*RELAY		Relay Output
*RELAY		Relay Output

* Terminals only present if option ordered



SOME COMMON POLLUTANTS DETECTABLE BY TOXALERT INTERNATIONALS IAQ SENSOR

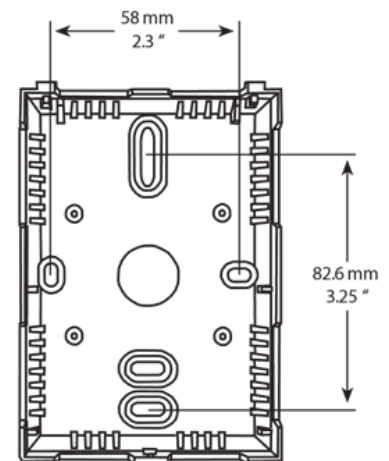
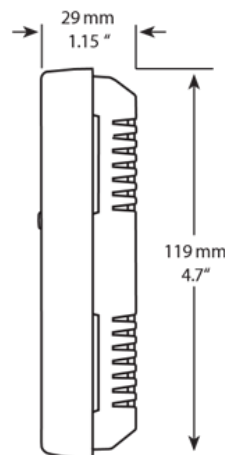
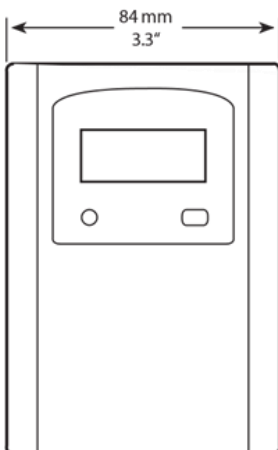
CHEMICAL

Methyl Ethyl Ketone
 Acetone
 Ethyl Alcohol
 Formaldehyde
 Hydrogen
 Methyl Alcohol
 Vinyl Chloride
 Hydrogen Sulfide
 Methyl Chloride
 Benzene, Toluene, Xylene
 Trichloroethylene
 Propane
 Carbon Monoxide
 Freon-22
 Ammonia
 Methane

COMMON SOURCE

Solvents and cleaning products
 Solvents and organic synthesis
 Solvents and liquor fermentation
 Disinfectants and preservatives
 Used in synthetics
 Solvents, antifreeze and synthetics
 Textiles and polymers
 Water and putrefying matter
 Solvents, paints and refrigerants
 Solvents and motor fuels
 Solvents and cleaning agents
 Fuels and chemical synthesis
 Combustion of carbon
 Refrigerants and aerosols
 Solvents and refrigerants
 Decomposition and synthesis
 Tobacco Smoke

DIMENSIONS:



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