

## HYDROCARBON SENSOR

## MODEL TOX-4100 Series

### FEATURES

- Low Voltage Circuits
- Automatic Calibration Interrupt and Delayed Return to on Line
- Fault Indication-visual and Electrical
- Explosion Proof Housing
- Low Sensitivity Check Button Built-in
- Industry standard signal can be interfaced directly to DDC System
- Reliable Operation and Monitoring Integrity

### GENERAL DESCRIPTION

The Toxalert Model Tox-4100 Series Sensor module is designed for use in conjunction with Toxalert Tox Series controllers or any standard direct digital 4-20 mA loop controller (DDC).

These gas sensor modules can monitor a wide variety of gases. Table A provides a partial list of gases that can be reliably monitored. If your gas is not on this list, check with your Toxalert representative to determine if a Tox-4100 series gas sensor module is available to meet your requirements.

The Tox-4100 utilizes semiconductor sensor technology to provide monitoring of gases in the part per million (PPM) ranges. Semi conductor sensors have a resistance in air that is affected by oxygen adsorbed on the surface of the sensor element. Oxygen atoms capture electrons on the semiconductor surface, thereby changing its resistance depending on the concentration of the gas. This change in resistance is monitored by the system controller.

The sensor operates on 24 VDC input power and has a non - linear 4-20 mA DC current loop output. A magnetically activated switch in the sensor locks the loop current at 4 mA (zero gas) during calibration . The loop current is also locked upon applying power to the sensor. This calibration delay feature holds the loop in this condition for five minutes to insure that no false alarm occurs during sensor recovery or warm-up.

Also, this sensor module maybe calibrated with gas of interest or with methane. Thus, the user does not have to obtain a special calibration gas.



**MODEL TOX-4100 Series**

**SPECIFICATIONS:**

- **Type:** Solid State Metal Oxide Semiconductor
- **Range:** 20 to 500 ppm or 50-5000 ppm. See Table A
- **Response Time:** 3 minutes to 80% indication
- **Typical Life:** 1-3 years in normal service
- **Operating Temperature :** 14°F to 104°F  
(-10°C to 40°C)
- ρ **Relative Humidity:** 5 to 95% RH non-condensing
- ρ **Storage Temperature:** -67°F to 185°F  
(-55°C to 85°C)
- **Electrical Data:**
  - Input Voltage:** 14 – 30 vdc
  - Input Power:** 2.1 Watt
  - Input Current:** 90 mA @ 24 vdc
  - Loop Resistance:** 800 Ohms at 28vdc
  - Output Signal:** 4 to 20 mA Non-linear
  - Wiring:** 3 wire non-isolated
- **Unit Construction:**
  - Mounting:** Conduit ¾” NPT or flexible cable
  - Housing:** Explosion proof (Nema 7)  
(Div 1, Class 1, Groups C, D)
  - Physical:** 6.75” x 4” x 3.5” (HxWxD)  
(17.1cm x 10.2cm x 8.9cm)
  - Weight:** 2 pounds (0.9kg)
  - Material:** Cast Aluminum epoxy painted

Table A: Gases and ranges for Tox-4100 Series Gas Sensor

<u>Gas</u>	<u>500 ppm Full Scale</u>	<u>5,000 ppm Full Scale</u>	<u>Gas</u>	<u>500 ppm Full Scale</u>	<u>5,000 ppm Full Scale</u>
acetic acid	Tox-4100/4	Tox-4100/5	methyl bromide	Tox-4100/4	Tox-4100/5
acetonitrile	Tox-4100/4	Tox-4100/5	methyl chloride	Tox-4100/4	Tox-4100/5
acrylonitrile	Tox-4100/4	Tox-4100/5	nitroethane	Tox-4100/4	Tox-4100/5
chloroform	Tox-4100/4	----	l-pentanol	Tox-4100/4	Tox-4100/5
cyclopentane	Tox-4100/4	Tox-4100/5	propanal	----	Tox-4100/5
diethylketone	Tox-4100/4	Tox-4100/5	i-propanol	Tox-4100/4	Tox-4100/5
ethanol	Tox-4100/4	Tox-4100/5	n-propanol	Tox-4100/4	Tox-4100/5
l-hexanol	Tox-4100/4	Tox-4100/5	propylene	Tox-4100/4	Tox-4100/5
hexafluoropropylene	Tox-4100/4	Tox-4100/5	toluene	Tox-4100/4	----
methanol	Tox-4100/4	Tox-4100/5	xylene	Tox-4100/4	----

**ORDERING INFORMATION:**

- Tox-4100/4 Gas Sensor Module; 4-20mA signal; 20-500 ppm range
- Tox-4100/5 Gas Sensor Module; 4-20mA signal; 50-5000 ppm range