

HYDROCARBON SENSOR

MODEL TOX-4100 Series

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 absorbed 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.

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

STANDARD 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 Toxalert system controllers or DDC System controllers.
- Reliable Operation and Monitoring Integrity

SPECIFICATIONS:

Type: Solid State Semiconductor
Range: 20 to 500 PPM or 50-5000PPM.
See Table A
Response Time: 3 minutes to 80% indication
Sensing Element Life: 1-3 years in normal service

Operating Temperature: 14°F to 104°F
(-10°C to 40°C)

Storage Temperature: -67°F to 185°F
(-55°C to 85°C)

Electrical Data

Input Voltage: 14 to 30 VDC
Input Power: 2.1 Watts
Output Signal: 90 mA @ 24 VDC
Loop Resistance: 800 @ Mhs @ 28 VDC

Relative Humidity: 5 to 95% RH
non-condensing

Output Signal: 4 to 20 mA Non-linear
Wiring: 3 wire non-isolated

Unit Construction

Mounting: Conduit 3/4" NPT or flexible cable
Housing: Division 1, Class 1, Group C & D

Physical: 6.75"H x 4"W x 3.5"D
(17.1cm x 10.2cm x 8.9cm)

Weight: 2 lbs (0.9kg)

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

Gas	500 ppm	5,000 ppm	Gas	500 ppm	5,000 ppm
	Full Scale	Full Scale		Full Scale	Full Scale
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; 50-5000ppm range