



ISO9001:2000  
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## Gas Detection Technology

### Ultra 1000 Addressable Toxic Sensor

#### Features

- RS-485 MODBUS Serial Output
- 4-20mA Analog Output
- 12-28 VDC Operation
- Automated Non-Intrusive Calibration
- Fully Adjustable Alarm Relay
- Lower wiring costs



#### Description

Ultra 1000 series is a microprocessor based addressable sensor for toxic gas detection. The self-contained sensor features user friendly interface and menu driven calibration procedure and configuration.

The complete sensor consists of a stainless steel sensor head assembly, a user connection board and a transmitter board assembly. All of the sensor electronics are enclosed in an explosion proof instrument box. The unit's modular design allows easy maintenance, troubleshooting and high reliability.

The unit provides a 4-20mA signal proportional to 0 to 100% of the detection range. In addition the sensor may be addressed via MODBUS RTU interface. The MODBUS output provides sensor status, alarm & fault conditions. Alarm levels can be programmed via MODBUS RTU or via magnetic switch on the face of the transmitter board assembly.

Ultra 1000 can be calibrated in less than 2 ½ minutes. The calibration and the set-up parameters are retained in a non-volatile memory.

# Ultra 1000 Addressable Toxic & Oxygen Deficiency Sensor

## Specifications

### Sensor Type

Electrochemical

### Measuring Ranges

Ammonia (NH <sub>3</sub> )	0-50 ppm
Carbon Monoxide (CO)	0-100, 0-1000 ppm
Chlorine (CL <sub>2</sub> )	0-10 ppm
Chlorine Dioxide (CLO <sub>2</sub> )	0-50 ppm
Ethylene (C <sub>2</sub> H <sub>4</sub> )	0-100 pm
Ethylene Oxide (C <sub>2</sub> H <sub>4</sub> O)	0-50 pm
Hydrogen Chloride (HCL)	0-20 ppm
Hydrogen Sulfide (H <sub>2</sub> S)	0-100, 0-500 ppm
Hydrogen (H <sub>2</sub> )	0-100, 0-1000 ppm
HydrogenCyanide (HCN)	0-30 ppm
Methyl Mercaptan (CH <sub>3</sub> SH)	0-100 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	0-20 ppm
Nitric Oxide (NO)	0-100 ppm
Oxygen Deficiency (O <sub>2</sub> )	0-25% by volume
Sulfur Dioxide (SO <sub>2</sub> )	0-50 ppm

### Repeatability

± 2 % Full scale

### Zero Drift

< 5% per year

### Typical Response Time

T90 < 30 seconds with 100% FS gas applied

### Classification

Class I, division 1, Groups B,C & D

### Operating Temperature

-4°F to +122°F (-20°C to +50°C)

### Operating Humidity

15% to 90% RH, non-condensing

### Display

2 lines by 8 Character LC Display with back light

### Status Indicators

LC Display for gas concentration, Alarm relay status, calibration mode and sensor fault status.

### Mechanical Specifications

Length: 7 inches (178 mm)

Width: 5 inches (127 mm)

Height: 4.5 inches (114 mm)

### Input Power

14-28 VDC. 24 VDC nominal

### Power Consumption

90mA @ 24 VDC typical

### Alarm Relays

Fully programmable. 0 to Full scale range of the sensor. Latching or Non-Latching.

### Relay Ratings

SPDT Form "C" type Relay contacts  
5 Amps @ 250 VAC or 30 VDC

### Analog Output

Linear 4-20mA (300 Ohms max. load)  
2.0 mA - Calibration mode  
< 1.0 mA - Sensor malfunction

### Interface

RS-485 MODBUS RTU (2 wire)  
at 9600 Baud rate

### Cable Entry Hub

¾" NPT Female

## Pem-Tech, Inc.