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Detcon Inc.

UniTox™

Universal Toxic Gas Sensors

- C₂H₃O
- C₂H₂
- C₃H₃N
- NH₃
- AsH₃
- Br₂
- C₄H₆
- CS₂
- CO
- COS
- Cl₂**
- ClO₂
- B₂H₆
- C₂H₆S
- C₃H₅OCl
- C₂H₅OH
- H₄
- G
- N₂H₄
- H₂ (p)
- H₂ (LEL)
- HBr
- HCl
- HCN
- HF
- H₂S
- CH₃OH
- CH₃SH
- NO
- NO₂
- O₃
- COCl₂
- PH₃
- SiH₄
- SO₂
- C₄H₈S
- C₄H₄S
- C₄H₆O₂
- C₂H₃Cl...



MicroSafe™ ▶

UniTox™ ▶

Controls ▶

PLC Controls ▶

Analyzers ▶

Sample Draw ▶

Accessories ▶

Calibration ▶

Product Overview

Detcon UniTox™ gas detection sensors are designed around a **Universal Transmitter** and a series of **Intelligent Sensor Modules**. The UniTox™ product group includes sensors for the detection and monitoring of approximately 40 toxic gases (plus oxygen). The rugged and flexible product package provides the user with several installation and maintenance options. ▶ The sensor assemblies are intrinsically safe yet mounted in an explosion proof enclosure. Installation in Class I, Division 1 hazardous locations can utilize intrinsically safe barriers located in safe zones or explosion proof wiring utilizing an intrinsically safe barrier mounted in the base of the sensor enclosure. Calibration and periodic maintenance can be performed in place or by moving the intelligent sensors modules to a safe area for service and calibration minimizing the time plant personnel are required to work in potentially hazardous areas.

The **Intrinsically Safe** UniTox™ sensors are two wire loop powered field devices that use advanced microprocessor technology to convert the signal from an electrochemical sensor to a linear 4-20 milliamp output. Digital communication between Intelligent Sensor Modules and the Universal Transmitter Module include data strings representing gas type, range of sensitivity and last calibration date. Peak reading values and time weighted average for the last 8 hours of operation are stored in the Universal Transmitter Module. Stored data can be viewed on the transmitter display.

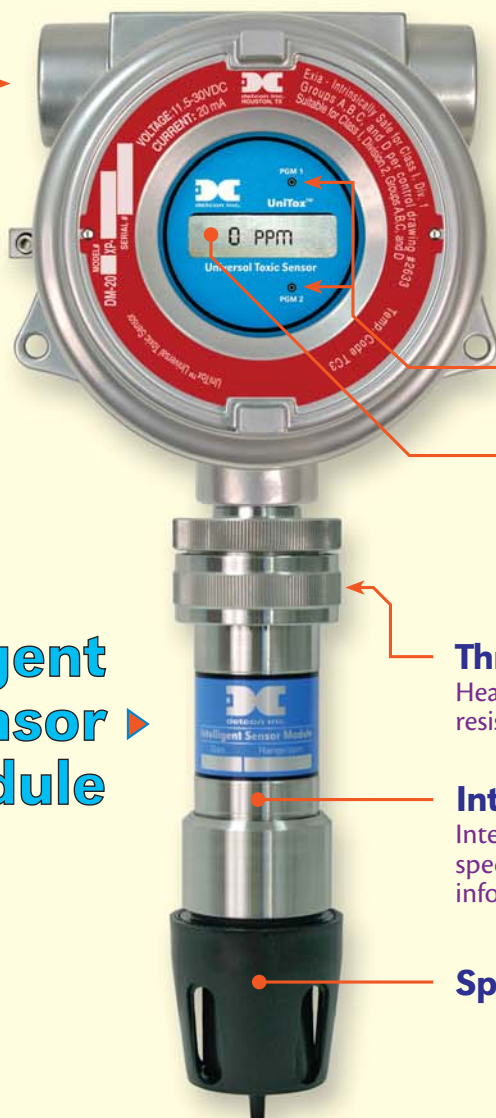
UniTox™

Design & Support

- ▶ The UniTox™ product line continues the Detcon philosophy of designing **modular** and **field tough** gas detection sensors that set the industry standard for reliability and Low Cost of Ownership.

UniTox™ sensors combine Detcon's superior offering of electrochemical sensors with extensive application engineering expertise to provide "the right sensor for every application".

3/4 NPT Ports



Universal Transmitter Module

Program Points

Operator interface is via magnetic switches located behind program points (PGM1 & PGM2) on the transmitter faceplate.

Menu Driven Display

The 2-line by 16-character LCD display is menu driven and user friendly, allowing for quick calibration and programming adjustment.

Intelligent Sensor Module

Threaded Connection

Heavy Duty gold plated pins for corrosion resistance and extended service life.

Intelligent Sensor Electronics

Intelligent microprocessor stores critical data specific to each sensor, and communicates this information to the Universal Transmitter.

Splashguard with Integral Cal Port

▶ Technology Features

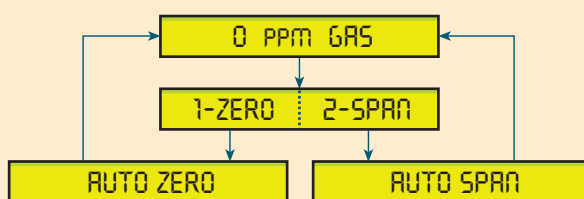
Transmitter/Sensor Compatibility

A single UniTox™ transmitter can be converted to a point of measurement for any gas simply by changing the sensor module. Intelligent Sensor Modules can be pre-calibrated, stored and rotated to the field as needed.



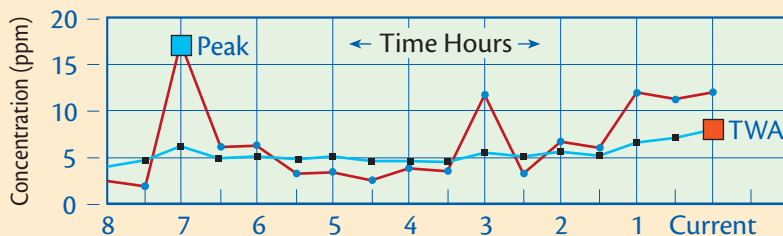
Simple Calibration

UniTox™ sensors are calibrated via a magnetic interface with simple instructions displayed on the LCD. Only a magnetic programming tool and span gas are required. The process is self-diagnostic and requires less than 3 minutes to perform.



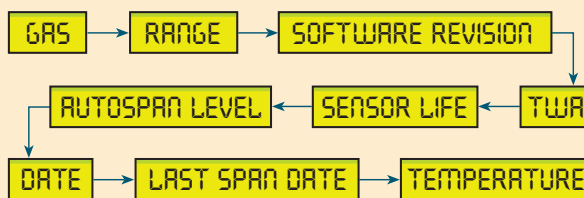
Data Logging Capability

UniTox™ sensors store the most recent 8 hour trending data for Peak Reading and Time-Weighted Average (TWA) of gas concentration. Peak readings with a duration of one second or less are captured and logged.



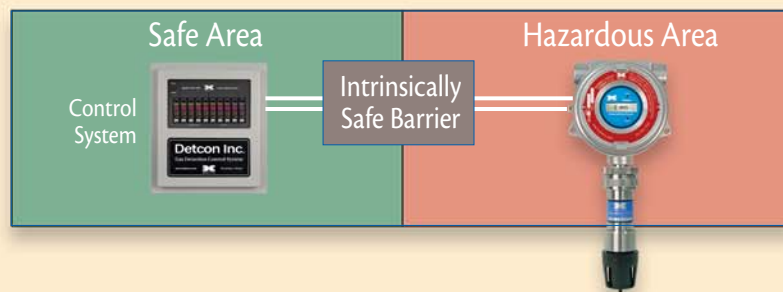
Easy To Manage User Interface

UniTox™ sensors provide a simple and efficient operator interface. Sensor status and sensor parameters (shown here) are communicated via the Universal Transmitter LCD display. Built-in diagnostics notify the end-user on calibration fault, sensor fault, missing sensor and communications errors.



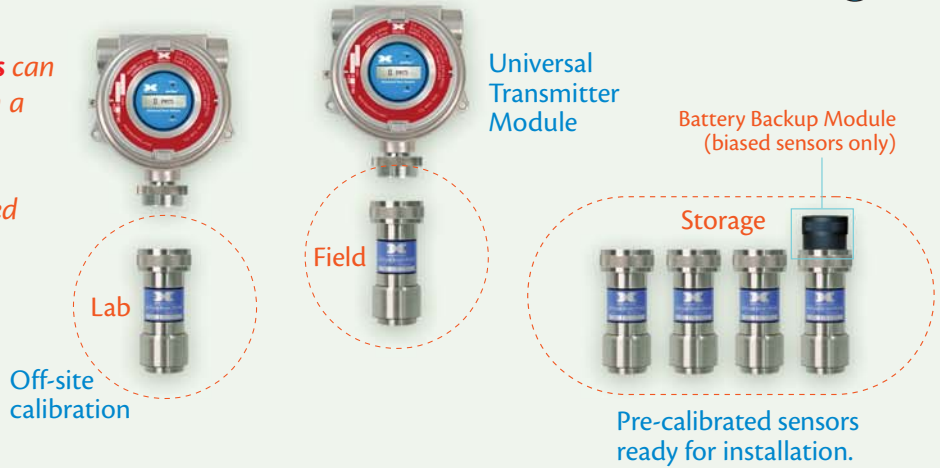
Intrinsically Safe Design

Both the Universal Transmitter and the Intelligent Sensor Modules are classified as intrinsically safe for use in hazardous areas. UniTox™ should be installed with industry-standard intrinsically safe zener diode barriers.



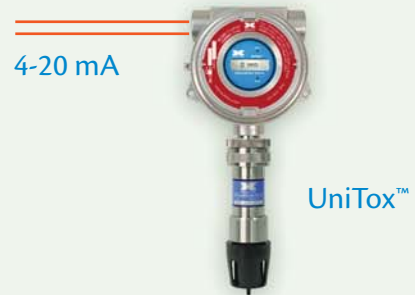
► Maintenance Flexibility

- ▶ **Intelligent Sensor Modules** can be calibrated and stored in a remote location, and then connected to a **Universal Transmitter Module** located anywhere in the facility.
- ▶ Storing pre-calibrated Sensor Modules allows for a timely and flexible maintenance program.

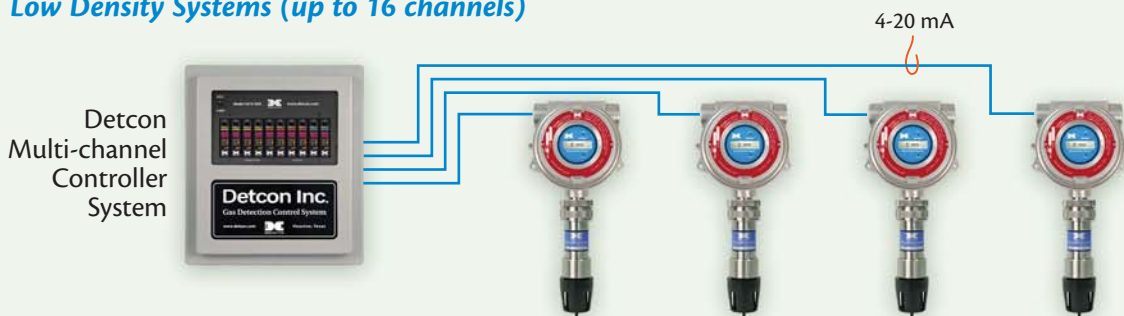


► Integration Options

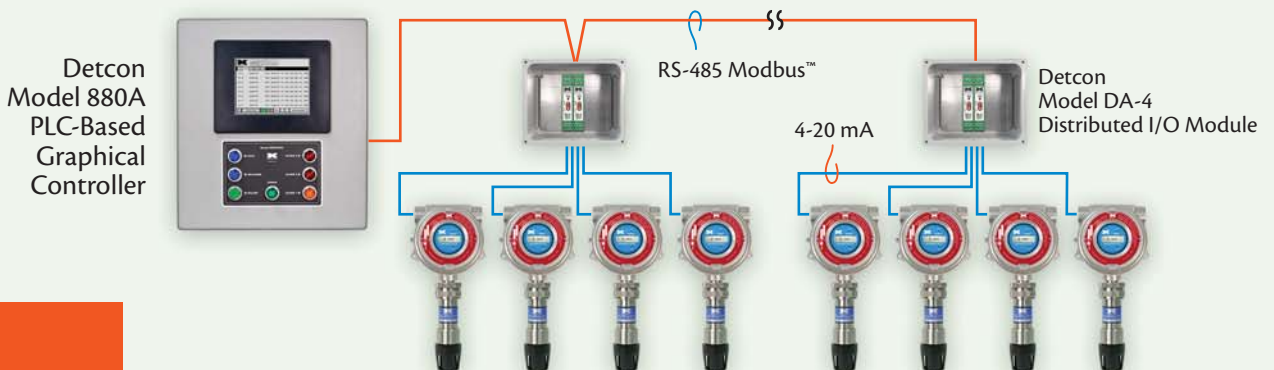
- ▶ The **UniTox™** sensor is a standard 4-20 mA loop-powered device which makes it interchangeable with all existing 2 and 3-wire gas sensor installations. UniTox™ integrates seamlessly with all 4-20 mA based PLC, DCS, and SCADA control systems.
- ▶ The 11.5-30 VDC operation makes it suitable to be powered remotely using solar/battery power sources.
- ▶ Intelligent Sensor Modules can be remote mounted from the Universal Transmitter up to 100 feet.



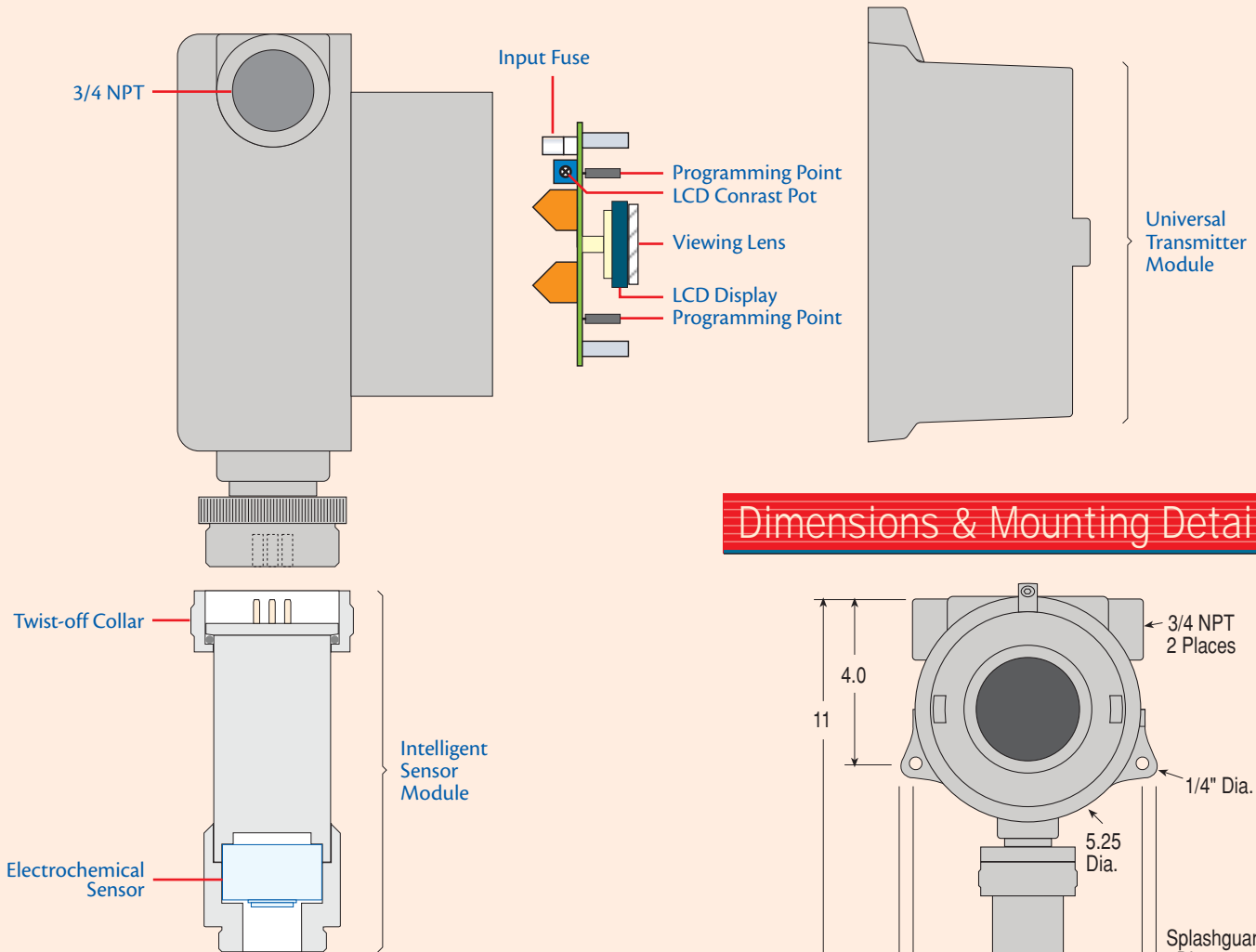
Low Density Systems (up to 16 channels)



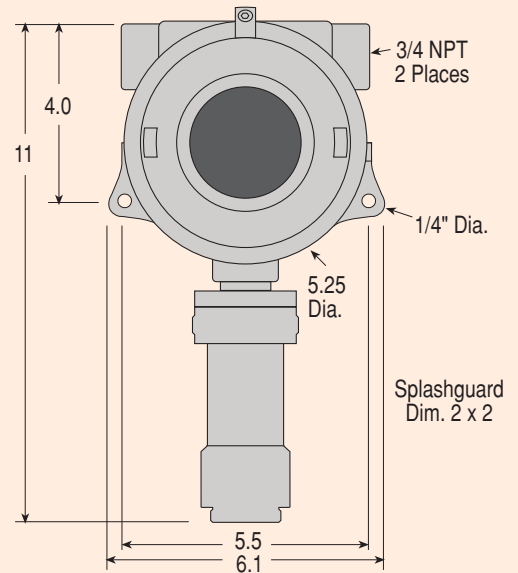
High Density Systems (up to 72 channels)



▶ Sensor Breakaway View



Dimensions & Mounting Detail



▼ Accessory Options

Accessory Options

- ▶ Calibration Adapter
- ▶ Battery Back-up Module (for biased sensors only)
- ▶ Remote Calibration Adapter
- ▶ Remote Sensor/Transmitter
- ▶ Dust Filter

▼ Warranty

Intelligent Sensor Module

Detcon Inc. warrants each new **Intelligent Sensor Module** to be free from defects in material and workmanship under intended normal use for a period of 1 to 3 years according to sensor type (see table on next page).

Universal Transmitter Module

Detcon warrants each new **Universal Transmitter Module** and to be free from defects in material and workmanship under intended normal use for a period of two years from the date of original purchase.

Specifications & Available Gases

Method of Detection

Electrochemical cell

Repeatability

± 2% FS

Linearity

± 10% of Reading

Temperature Range

Sensor: See table below

Transmitter: -20°C to +55°C/-4°F to 131°F

Humidity

Typically 5 to 95% RH

(Consult factory for sensor specific limits)

Output

Linear 4-20 mA DC

Input Voltage

11.5 to 30 VDC

Maximum Loop Load

650 ohms @ 24VDC

75 ohms @ 12 VDC

Power Consumption

Normal operation = 4 mA (0.1 watts @ 24VDC);

Maximum = 20 mA (0.5 watts @ 24VDC)

Electrical Classification

Class 1; Div. 1; Groups A,B,C,D; EEx ia IIC T3C

CE Marking

Enclosure Rating

NEMA 4X; IP66

Approvals

CSA/NRTL (US OSHA Certified); ATEX (Pending)

Order Model #	Gas/Symbol*	Range**	Response Time***	Operating Temperature	Warranty****
DM-200XP-O2	Oxygen O2	0-25%	T90 <20 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-C2H3O	Acetaldehyde C2H3O	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-C2H2	Acetylene C2H2	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-C3H3N	Acrylonitrile C3H3N	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-NH3	Ammonia NH3	0-100 ppm	T90 <60 seconds	-20°C to +40°C/-4°F to +104°F	2 Years
DM-200XP-AsH3	Arsine AsH3	0-1 ppm	T90 <60 seconds	-20°C to +40°C/-4°F to +104°F	1 1/2 Years
DM-200XP-Br2	Bromine Br2	0-5 ppm	T90 <60 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-C4H6	Butadiene C4H6	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-CO	Carbon Monoxide CO	0-100 ppm	T90 ≤30 seconds	-40°C to +50°C/-40°F to +122°F	3 Years
DM-200XP-Cl2	Chlorine Cl2	0-10 ppm	T90 <60 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-ClO2	Chlorine Dioxide ClO2	0-50 ppm	T90 <60 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-201-ClO2	Chlorine Dioxide ClO2	0-1 ppm	T90 <60 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-B2H6	Diborane B2H6	0-5 ppm	T90 <60 seconds	-20°C to +50°C/-4°F to +104°F	1 1/2 Years
DM-200XP-C2H5OH	Ethanol C2H5OH	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-C2H5SH	Ethyl Mercaptan C2H5SH	0-100 ppm	T90 <45 seconds	-40°C to +50°C/-40°F to +122°F	2 Years
DM-200XP-C2H4	Ethylene C2H4	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-C2H4O	Ethylene Oxide C2H4O	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-F2	Fluorine F2	0-1 ppm	T90 <80 seconds	-10°C to +40°C/+14°F to +104°F	1 1/2 Years
DM-200XP-CH2O	Formaldehyde CH2O	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-GeH4	Germane GeH4	0-2 ppm	T90 <60 seconds	-20°C to +40°C/-4°F to +104°F	1 1/2 Years
DM-200XP-N2H4	Hydrazine N2H4	0-1 ppm	T90 <120 seconds	-10°C to +40°C/+14°F to +104°F	1 Year
DM-200XP-H2	Hydrogen H2 (ppm)	0-100 ppm	T90 ≤30 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-201-H2	Hydrogen H2 (LEL)	LEL	T90 <60 seconds	-40°C to +40°C/-40°F to +104°F	2 Years
DM-202-H2	Hydrogen H2 (1%)	0-1%	T90 <60 seconds	-40°C to +40°C/-40°F to +104°F	2 Years
DM-200XP-HBr	Hydrogen Bromide HBr	0-30 ppm	T90 <70 seconds	-20°C to +40°C/-4°F to +104°F	1 1/2 Years
DM-200XP-HCl	Hydrogen Chloride HCl	0-30 ppm	T90 <70 seconds	-20°C to +40°C/-4°F to +104°F	1 1/2 Years
DM-200XP-HCN	Hydrogen Cyanide HCN	0-30 ppm	T90 <40 seconds	-40°C to +40°C/-40°F to +104°F	2 Years
DM-200XP-HF	Hydrogen Fluoride HF	0-10 ppm	T90 <90 seconds	-20°C to +35°C/-4°F to +95°F	1 Years
DM-200XP-H2S	Hydrogen Sulfide H2S	0-100 ppm	T90 ≤30 seconds	-40°C to +50°C/-40°F to +122°F	2 Years
DM-200XP-CH3OH	Methanol CH3OH	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-CH3SH	Methyl Mercaptan CH3SH	0-100 ppm	T90 <45 seconds	-40°C to +50°C/-40°F to +122°F	2 Years
DM-200XP-NO	Nitric Oxide NO	0-100 ppm	T90 ≤10 seconds	-20°C to +50°C/-4°F to +122°F	3 Years
DM-200XP-NO2	Nitrogen Dioxide NO2	0-10 ppm	T90 <40 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-O3	Ozone O3	0-1 ppm	T90 <120 seconds	-10°C to +40°C/+14°F to +104°F	2 Years
DM-200XP-COCl2	Phosgene COCl2	0-1 ppm	T90 <120 seconds	-20°C to +40°C/-4°F to +104°F	1 1/2 Years
DM-200XP-PH3	Phosphine PH3	0-5 ppm	T90 <30 seconds	-20°C to +40°C/-4°F to +104°F	1 1/2 Years
DM-200XP-SiH4	Silane SiH4	0-50 ppm	T90 <60 seconds	-20°C to +40°C/-4°F to +104°F	1 1/2 Years
DM-200XP-SO2	Sulfur Dioxide SO2	0-20 ppm	T90 ≤20 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-C4H6O2	Vinyl Acetate C4H6O2	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years
DM-200XP-C2H3Cl	Vinyl Chloride C2H3Cl	0-100 ppm	T90 <140 seconds	-20°C to +50°C/-4°F to +122°F	2 Years

* Contact the factory for other gases not on this list **Standard Range - contact factory for other ranges ***T90 = 90% ****Intelligent Sensor Module.
Cross sensitivity data available on request.