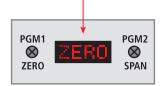


# Model DM-700-O,

Oxygen Sensor





Electrochemical Fuel Cell (shown as PN 967-343494-25P\_ in SS junction box)











## **Description**

Model DM-700-O<sub>2</sub> is a non-intrusive "Smart" sensor designed to detect and monitor Oxygen in air over the range of 0-25% by volume using electrochemical sensor technology. The plug-in, field replaceable sensor cell is temperature compensated and features over-sized gold-plated connections that help prevent corrosion. The Model 700's rugged framework includes an intrinsically safe electro-polished 316 stainless steel housing with fully encapsulated electronics and dual layer surge protection. This innovative design virtually eliminates sensor failure due to water ingress, corrosion, vibration, and transient spikes. A primary feature of the Model 700 is embedded intuitive software that simplifies operator interface by guiding the user through routine calibration, configuration, and fault diagnostic functions using a built-in alpha/numeric display. The Model 700 is equipped with standard analog 4-20mA, and Modbus™ RS-485 outputs. Among its unique features is a wireless option that can be used with Detcon's SmartWireless® product line. Additional integration options include a Remote Alarm Module (RAM), and HART. Detcon's oxygen sensors have a long shelf life and are supported by an industry-leading warranty.

## **Applications**

- Petrochemical
- Refineries
- Chemical plants
- Confined Space Monitoring
- Analyzer Shelters
- Wastewater treatment plants
- Wet wells-dry wells
- Pulp and paper
- Food and beverage
- Utilities

### **Features**

### Failsafe User-Friendly Interface

- LED Display (With Antiglare Cover)
- Full Text Display Method
- Non-intrusive Interface
- Auto Zero/Auto Span
- Pre-emptive Fault Diagnostics

### **Environmentally Bulletproof**

- Electropolished 316SS Construction
- 100% Epoxy Encapsulated Circuitry
- Bulletproof I/O Protection
- Water-Proof, Corrosion-Proof, Vibration-Proof

### Modular and Serviceable

- Modular Design
- Plug and Play Components
- Quick Thread Release (For Sensor Replacement)
- Integral Calibration Port



## Model DM-700-02

## Oxygen Sensor

### **System Specifications**

#### **Sensor Type**

Continuous diffusion/adsorption 2-electrode electrochemical cell Plug-in field replaceable Intelligent Type

#### Sensor Life

2 1/2 to 3 years typical

### **Measurement Range**

0-25% Oxygen by volume

### Accuracy/Repeatability

±1% FS

### Response/Clearing Time

T90 ≤ 10 seconds

### **Span Drift**

<5% of signal per year (in first two years)

#### **Outputs**

Linear 4-20 mA DC RS-485 MODBUS-RTU

#### **Electrical Classification**

Explosion proof
CSA and US (NRTL)
Class I, Division 1, Groups B, C, D
(Tamb = -40°C to +50°C)
Class I, Zone 1, Group IIC
ATEX
II 2 G Ex d ib IIB + H2 T4 Gb (Tamb = -40°C to +50°C)

### **Ingress Protection**

NEMA 4X, IP66

#### **Safety Approvals**

cCSAusa ATEX CE Marking SIL2 Certified to IEC 61508

### Warranty

Plug-in Cell - 2 years; Transmitter - 2 Years

## **Environmental Specifications**

### **Operating Temperature Range**

-40°F to +122°F; -40°C to +50°C

### Storage Temperature Range

-40°F to +122°F; -40°C to +50°C

### **Operating Humidity Range**

0-99% RH non-condensing

### **Operating Pressure Range**

Atmospheric ±10%

Specifications subject to change without notice

## Order Guide Specify junction box options (below)

PN 967-343490-25P DM-700-O2 Sensor Assembly (no junction box)
PN 967-343491-25P DM-700-O2 Sensor Assembly with Aluminum J-Box
PN 967-343494-25P DM-700-O2 Sensor Assembly with 316 SS J-Box

### **Mechanical Specifications**

#### **Dimensions**

 $7''H \times 2.2'' \ Dia.; \ 178mmH \times 65mm \ Dia.$  (sensor assembly only)  $11''H \times 6.1''W \times 3.75''D; \ 280mmH \times 155mmW \times 96mmD$  (with junction box) Mounting holes (J-box)  $5.5''; \ 140mm \ center$  to center

#### Weight

2 lbs; 0.907kg (sensor only) 6 lbs; 2.72kg (w/ aluminum j-box) 9 lbs; 4.08kg (w/stainless steel j-box)

### **Electrical Specifications**

### **Power Input**

11-30 VDC

#### **Power Consumption**

Normal operation = 30mA (<0.75 watt) Maximum = 50mA (1.2 watts)

#### **Inrush Current**

1.67A @ 24V

### RFI/EMI Protection

Complies with EN50270

#### **Analog Output**

Linear 4-20mA DC (1,000 ohms max loop load @ 24VDC)

0mA All Fault Diagnostics 2mA In-Calibration 4-20mA 0-100% full-scale 22mA Over-range condition

### Serial RS-485 Output

RS-485 Modbus™ RTU

### **Baud Rate**

9600 BPS (9600,N,8,1 Half Duplex)

### **Status Indicators**

4-digit LED display with gas concentration Full-script menu prompts for AutoSpan, Set-up Options, and Fault Reporting

### **Faults Monitored**

Loop, Input Voltage, Missing Sensor, Zero, Processor, Memory, Calibration

### **Cable Requirements**

Power/Analog

3-wire shielded cable

Maximum distance is 13,300 feet with 14 AWG

Serial Output

2-wire twisted-pair shielded cable specifically for use with RS-485 installations

Maximum distance is 4,000 feet to last sensor

### I/O Protection

Over-voltage, Miswiring, EMI/RFI Immunity

### **Integration Options**

Remote Alarm Module (Remote Operation and 2 Alarm Relays plus Fault)
Hart Integration Module (Hart Communication Protocol version 7.0, HART Registered)
Wireless Integration Module (Detcon Model RXT-320 SmartWireless® Transceivers)

Teledyne Gas & Flame Detection quality assurance programmes demand the continuous assessment and improvement of all our products. Information in this leaflet could thus change without notification and does not constitute a product specification. For more information, please contact us or your company representative



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