



Model DM-700-O2 Oxygen Sensor

GAS DETECTION SENSORS ■ INTEGRATED CONTROL SYSTEMS ■ SMARTWIRELESS® ■ PIPELINE ANALYZERS ■ ALARMS

Description

Detcon Model DM-700-O2 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), HART, Foundation Fieldbus, and Profibus. Detcon’s oxygen sensors have a long shelf life and are supported by an industry-leading warranty.

Electrochemical Fuel Cell (shown as PN 967-344520-025 in SS junction box)



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

Applications

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

Scrolling Full Message/Text Display



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] IIC T4 (Tamb = -40°C to +50°C)

Ingress Protection

NEMA 4X, IP66

Safety Approvals

cCSAus
ATEX
CE Marking
SIL2 FMEDA Rating

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 967-345520-025 DM-700-O2 Sensor Assembly (no junction box)
PN 967-341520-025 DM-700-O2 Sensor Assembly with Aluminum J-Box
PN 967-344520-025 DM-700-O2 Sensor Assembly with 316 SS J-Box

Mechanical Specifications

Dimensions

7"H x 2.2" Dia.; 178mmH x 65mm Dia. (sensor assembly only)
11"H x 6.1"W x 3.75"D; 280mmH x 155mmW x 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 EN61000

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)
Profibus Integration Module (Certified to Profibus DP Standard)
Foundation Fieldbus Integration Module (Foundation Fieldbus version 5.01)
Wireless Integration Module (Detcon Model RXT-320 SmartWireless® Transceivers)

Houston



Odessa



Shanghai



Dammam



Del Carmen



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