Model DM-700-O2
Oxygen Sensor

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

R120513

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℃ to +50℃)
Class I, Zone 1, Group IIC
ATEX
II 2 G Ex d [ib] ib IIC T4 (Tamb = -40℃ to +50℃)

Ingress Protection
NEMA 4X, IP66

Safety Approvals
cCSAus
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℃ to +50℃

Storage Temperature Range
-40°F to +122°F; -40℃ to +50℃

Operating Humidity Range
0-99% RH non-condensing

Operating Pressure Range
Atmospheric ±10%

Specifications subject to change without notice

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

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

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