Description
Detcon Model DM-700-CH2O is a non-intrusive “Smart” sensor designed to detect and monitor Formaldehyde in air over the range of 0-100 ppm using electrochemical sensor technology. The intelligent plug-in, field replaceable cell provides automatic recognition of gas type and range, 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, and Foundation Fieldbus. Detcon’s toxic gas sensors have a long shelf life and are supported by an industry-leading warranty.

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
- Oil & Gas
- Chemical Plants
- Food and Beverage
- Steel Mills
- Pulp and Paper
- Refineries
- Wastewater Treatment Plants
- Utilities

Electrochemical Fuel Cell
(shown as PN 967-12EP94-100 in SS junction box)

www.detcon.com
**Model DM-700-CH2O - Formaldehyde Sensor**

**System Specifications**

**Sensor Type**
- Continuous diffusion/adsorption
- 3-electrode electrochemical cell
- Plug-in field replaceable Intelligent Type

**Measurement Range**
- 0-100 ppm, Other ranges available

**Accuracy/Repeatability**
- ±2% FS

**Response/Clearing Time**
- T90 <140 seconds

**Span Drift**
- <5% signal loss per year

**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 Gb (Tamb = -40°C to +50°C)

**Ingress Protection**
- NEMA 4X, IP66

**Safety Approvals**
- cCSAus
- ATEX
- CE Marking
- SIL2 Certified to IEC 61508

**Sensor Life/Warranty**
- Plug-in cell - 2 years; Transmitter - 2 Years

**Environmental Specifications**

**Operating Temperature Range**
- -4°F to +122°F; -20°C to +50°C

**Storage Temperature Range**
- -31°F to +131°F; -35°C to +55°C (typical)

**Operating Humidity Range**
- 15% to 90% RH non-condensing

**Operating Pressure Range**
- Atmospheric ±10%

Specifications subject to change without notice

**Order Guide**
- Specify junction box options (below)
  - PN 967-12EP90-100 DM-700-CH2O Sensor Assembly (no junction box)
  - PN 967-12EP91-100 DM-700-CH2O Sensor Assembly with Aluminum J-Box
  - PN 967-12EP94-100 DM-700-CH2O 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**
- 500mA @ 24V (typical)

**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)

Foundation Fieldbus Integration Module (Foundation Fieldbus version 5.01)

Wireless Integration Module (Detcon Model RXT-320 SmartWireless® Transceivers)

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