Electrochemical Fuel Cell
(Shown as PN 967-192094-005 in SS junction box)

**Model DM-700-PH3**
Phosphine Sensor

Description
Detcon Model DM-700-PH3 is a non-intrusive “Smart” sensor designed to detect and monitor Phosphine in air over the range of 0-5 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

[Detcon Model DM-700-PH3 Phosphine Sensor]

[www.detcon.com]
Model DM-700-PH3  Phosphine Sensor

System Specifications

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

Measurement Range
- 0-5 ppm, Other ranges available

Accuracy/Repeatability
- ±2% FS

Response/Clearing Time
- T90 < 30 seconds

Span Drift
- <1% signal loss per month

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 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 - 1 1/2 years; Transmitter - 2 Years

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

Order Guide

PN 967-192090-005 DM-700-PH3 Sensor Assembly (no junction box)
PN 967-192091-005 DM-700-PH3 Sensor Assembly with Aluminum J-Box
PN 967-192094-005 DM-700-PH3 Sensor Assembly with 316 SS J-Box

Specify junction box options (below)

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 Smart Wireless Transceivers)

Environmental Specifications

Operating Temperature Range
- -4°F to +104°F; -20°C to +40°C

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

Operating Humidity Range
- 20% to 95% RH non-condensing

Operating Pressure Range
- Atmospheric ±10%

Specifications subject to change without notice

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