



Model DM-700-PH3 Phosphine Sensor

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

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, Foundation Fieldbus, and Profibus. Detcon’s toxic gas sensors have a long shelf life and are supported by an industry-leading warranty.

Electrochemical Fuel Cell

(shown as PN 967-192094-005 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

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

Scrolling Full Message/Text Display



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 [ib] ib IIC T4 (Tamb = -40°C to +50°C)

Ingress Protection

NEMA 4X, IP66

Safety Approvals

cCSAus
ATEX
CE Marking
SIL2 FMEDA Rating

Sensor Life/Warranty

Plug-in cell - 1 1/2 years; Transmitter - 2 Years

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

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 967-192090-005 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

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



Tel: 713-559-9200
Toll Free: 888-367-4286
Fax: 281-292-2860
Email: sales@detcon.com
Web: www.detcon.com

ISO 9001: 2008
Certified