

## Model FP-700

Combustible Gas Sensor



Scrolling Full Message/Text Display



Matched Pair Catalytic Bead  
(shown as PN 967-524520-100 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

## Description

Model FP-700 is a non-intrusive “Smart” sensor designed to detect and monitor combustible gases in air over the range of 0-100% LEL using catalytic bead sensor technology. The plug-in, field replaceable detector is poison-resistant and features over-sized gold-plated connections that help prevent corrosion. The FP-700’s rugged framework includes an 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 FP-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 FP-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), and HART. Detcon’s combustible gas sensor has an infinite shelf life and is supported by a 2-year warranty.

## Applications

- Oil and Gas Drilling Rigs
- Oil and Gas Production Sites
- Offshore Production Platforms
- FPSOs
- LNG/CNG Plants
- Refining and Petrochemical
- Pulp and Paper Mills
- Waste Water Treatment Plants



# Model Model FP-700

## Combustible Gas Sensor

### System Specifications

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#### Sensor Type

- Continuous diffusion/adsorption
- Matched-pair catalytic bead detector
- Plug-in field replaceable

#### Sensor Life

- 3 to 5 years typical

#### Measurement Range

- 0-100% LEL (lower explosive limit)

#### Accuracy/Repeatability

- ±3% 0-50% LEL; ±5% 50-100% LEL

#### Response/Clearing Time

- T50 <10 seconds; T90 <30 seconds

#### Zero Drift

- <5% per year

#### Outputs

- Linear 4-20 mA DC
- RS-485 MODBUS-RTU

#### Electrical Classification

- Explosion proof
- cCSAus
- Class I, Division 1, Groups B, C, D (Tamb = -40°C to +75°C)
- Class I, Zone 1, Group IIB+H2
- ATEX
- II 2 G Ex d IIB + H2 T4 Gb (Tamb = -40°C to +70°C)

#### Ingress Protection

- NEMA 4X, IP66

#### Safety Approvals

- cCSus Performance to ANSI/ISA 60079-29-1 (12.13.01)-2013 and CSA 22.2 #152
- ATEX
- CE Marking
- SIL2 Certified to IEC 61508

#### Warranty

- Plug-in detector - 2 years
- Transmitter - 2 Years

### Environmental Specifications

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#### Operating Temperature Range

- 40°F to +167°F; -40°C to +75°C

#### Storage Temperature Range

- 40°F to +167°F; -40°C to +75°C

#### Operating Humidity Range

- 0-99% RH non-condensing

Specifications subject to change without notice

### Order Guide

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Specify junction box options (below)

- PN 967-525520-100 FP-700 Sensor Assembly (no junction box)
- PN 967-521520-100 FP-700 Sensor Assembly with Aluminum Junction Box
- PN 967-524520-100 FP-700 Sensor Assembly with 316 SS Junction Box
- PN 9H7-521520-100 FP-700 Sensor Assembly with HART in Aluminum Junction Box
- PN 9H7-524520-100 FP-700 Sensor Assembly with HART in 316 SS Junction Box
- PN 9R7-524520-100 FP-700 Sensor Assembly with RAM in Aluminum Junction Box
- PN 9R7-524520-100 FP-700 Sensor Assembly with HART in 316SS Junction Box

### Mechanical Specifications

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#### 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

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#### Power Input

- 11-30 VDC

#### Power Consumption

- Normal operation = 68mA (<1.7 watt)
- Maximum = 85mA (2 watts)

#### Inrush Current

- 1.0A @ 24V

#### RFI/EMI Protection

- Complies with EN50270

#### 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

- Operating Temperature, Loop, Input Voltage, Bridge Voltage, Zero, Sensor, 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

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- Remote Alarm Module (Remote Operation and 2 Alarm Relays plus Fault)
- Hart Integration Module (Hart Communication Protocol version 7.0, HART Registered)
- Wireless Integration Module (Detcon Model RXT-320 SmartWireless® Transceivers)

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