



Model FP-100

Combustible Gas Sensor

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

Description

Detcon Model FP-100 is a gas detection sensor designed to detect and monitor combustible gases in air over the range of 0-100% LEL using catalytic bead sensor technology. This innovative design marks a return to a simple, more affordable, and durable gas detection sensor without compromising quality.

Model FP-100 Series sensors feature intelligent electronics, non-intrusive operator interface and comprehensive fault diagnostics. The sensor is packaged in an electro-polished 316 stainless steel housing fitted with a 3/4 inch NPT thread. The plug-in, field replaceable sensor is poison resistant and features large surface area gold-plated pins that reduce the effects of corrosion in harsh industrial environments. Signal conditioning electronics are completely encapsulated in the sensor housing adding a high level of durability to the design. The packaging is Explosion Proof (Class I, Div. 1 Groups B, C, D).

Model FP-100 is equipped with a standard analog 4-20 mA current signal equivalent to the sensor range of detection. Upper enclosure options are aluminum and stainless steel (includes a transient protection terminal board). Additional accessories include wireless communications, a loop powered digital display, Remote Alarm Module (RAM), HART, and a current to RS-485 converter. The standard serial converter is Modbus RTU. Each sensor is shipped with a splash guard with integral calibration port. Detcon's combustible gas sensor has an infinite shelf life and is supported by a 2-year warranty.



(shown as PN 961-520022-100 in Aluminum j-box with Loop Powered Display)

Features

- ▶ NEMA 4X Weatherproof & NEMA 7 Explosion Proof
- ▶ Class I, Div. 1, Groups B, C, & D
- ▶ Field Replaceable Plug-in Detector
- ▶ Non-intrusive Magnetic Interface
- ▶ Built-in Diagnostics
- ▶ Fully Encapsulated Electronics
- ▶ Electropolished 316SS Construction
- ▶ Quick Thread Release (for sensor replacement)
- ▶ Integral Calibration Port

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

System Specifications

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

Electrical Classification

Explosion proof
CSA and US (NRTL)
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 (Tamb = -40°C to +75°C)

Ingress Protection

NEMA 4X, IP66

Safety Approvals

cCSAus (Pending)
ATEX (Pending)
CE Marking (Pending)

Sensor Life/Warranty

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

Environmental Specifications

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

0-100% RH non-condensing

Operating Pressure Range

Atmospheric ±10%

Specifications subject to change without notice

Order Guide

961-520025-100 FP-100 (no junction box)
961-520021-100 FP-100 with aluminum j-box
961-520023-100 FP-100 with 316 SS j-box
961-520022-100 FP-100 with alum j-box & loop powered display
961-520024-100 FP-100 with 316 SS j-box & loop powered display

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)
Mechanical Connection:
3/4" male NPT threaded connection with locking nut
Electrical Connection:
Four 18 gauge wire leads - 5.5" long
Mounting holes (with 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

10-28 VDC

Power Consumption

Normal operation = 20mA (0.5 watts @ 24VDC)
Maximum = 38mA (0.9 watts @ 24VDC)

Inrush Current

1A @ 12V, 2A @ 24V

RFI/EMI Protection

Complies with EN61362

Analog Output

Linear 4-20mA DC (750 ohms max loop load @ 24VDC)
1.2mA All Fault Diagnostics (without display)
3mA All Fault Diagnostics (with display)
4-20mA 0-100% full-scale
22mA Over-range condition

Serial RS-485 Output (optional)

RS-485 Modbus™ RTU

Baud Rate (optional)

9600 BPS (9600,N,8,1 Half Duplex)

Status Indicators

4-digit LED display with gas concentration & fault (optional)

Faults Monitored

Missing Sensor, Zero,
Calibration, Temperature

Cable Requirements

Power/Analog
3-wire shielded cable
Maximum distance is 13,300 feet with 14 AWG
Serial Output (optional)
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

Accessories

Junction Box (aluminum or 316-SS with Transient Protection Terminal Board)
Loop Powered Digital Display (Provides a Direct Display of Sensor Readings)
Remote Alarm Module (Remote Operation and 2 Alarm Relays plus Fault)
Hart Integration Module (Hart Communication Protocol version 7.0, HART Registered)
Current to RS-485 Converter (Modbus RTU)
Wireless Communications (Detcon Model RXT-320 SmartWireless® Transceivers)

Houston ■ Odessa ■ Shanghai ■ Dammam ■ Del Carmen ■ Europe



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

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