detcon inc.

Model IR-700-CH

Combustible Gas Sensor

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

Description

Detcon Model IR-700-CH is a non-intrusive "Smart" sensor designed to detect and monitor combustible hydrocarbon gases in air over the range of 0-100% LEL using miniature non-dispersive Infrared Optical (NDIR) sensor technology. As compared to catalytic bead sensors, with NDIR there is no risk of sensor poisoning, no risk of high concentration saturation, and no need for O2 to be present. The plug-in, field replaceable detector features over-sized gold-plated connections that help prevent corrosion. The IR-700-CH'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 IR-700-CH 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 IR-700-CH 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 combustible gas sensor has an infinite shelf life and is supported by a 5-year pro-rated warranty.

Non-dispersive Infrared Optical

(shown as PN 967-214520-100 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

Applications

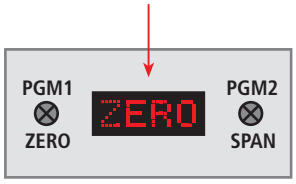
- Oil and Gas Drilling Rigs
- Oil and Gas Production Sites
- Offshore Production Platforms
- FPSOs
- LNG/CNG Plants
- Refining and Petrochemical
- Pulp and Paper Mills
- Waste Water Treatment Plants

Gases Detected

Methane	Hexane
Ethane	Ethylene
Propane	Gasoline Vapor
Butane	Diesel Fuel Vapor
Pentane	Jet Fuel Vapor

For other gases consult the factory.

Scrolling Full Message/Text Display



Model IR-700-CH ▪ Combustible Gas Sensor

R080815

System Specifications

Sensor Type
Continuous diffusion/adsorption
Non-dispersive Infrared Optical (NDIR) - Combustible Gas
Sub-miniature plug-in field replaceable

Sensor Life
5 years typical

Measurement Range
0-100% LEL (lower explosive limit)
0-100% by volume

Accuracy
±2% F.S. (0-50% LEL)

Repeatability
±2% F.S.

Response Time*
T50 < 6 seconds, T90 < 10 seconds

Zero Drift (typical)
≤2% per 2 years

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 +75°C)
Class I, Zone 1, Group IIB+H2
ATEX
II 2 G Ex d IIB + H2 T4 Gb (Tamb = -40°C to +75°C)

Ingress Protection
NEMA 4X, IP66

Safety Approvals
cCSAus Performance to ISA 12.13.01-2000 and CSA 22.2 #152
ATEX
CE Marking
SIL2 Certified to IEC 61508

Warranty
Plug-in detector - 5 year pro-rated
Transmitter - 2 Years

* As tested with 1 lpm flowrate

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

Specifications subject to change without notice

Order Guide

Specify junction box options (below)

PN 967-215520-100	IR-700-CH Sensor Assembly (no junction box)
PN 967-211520-100	IR-700-CH Sensor Assembly with Aluminum Junction Box
PN 967-214520-100	IR-700-CH Sensor Assembly with 316 SS Junction 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 = 68mA (<1.7 watt)
Maximum = 85mA (2 watts)

Inrush Current
0.67A @ 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,
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

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)

Houston ▪ Odessa ▪ Shanghai ▪ Dammam ▪ Del Carmen

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ISO 9001: 2008 Certified