



Model TP-624D

Hydrogen Sulfide Sensor

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

Description

Detcon Model TP-624D is a “Smart” gas detection sensor designed to detect and monitor H₂S in air over the range of 0-100 ppm using a proprietary solid state metal oxide semiconductor technology. This innovative design offers several advantages including longer sensor life and better temperature and humidity performance.

Model TP-624D features Detcon's MicroSafe™ intelligent electronics, non-intrusive operator interface and comprehensive fault diagnostics. The sensor transmitter features an advanced universal design that fits all existing Detcon MOS H₂S sensors dating back more than 20 years. The sensor assembly includes a MOS detector in stainless steel housing, a base connector board, an explosion proof enclosure (available in aluminum or stainless steel), a plug-in control transmitter circuit, and a splashguard with integral cal port. The packaging is Explosion Proof (Class I, Div. 1 Groups B, C, D).

Model TP-624D is equipped with a standard analog 4-20 mA current signal equivalent to the sensor range of detection, RS-485 serial communications port, 3 alarm relays, one-man remote calibration, self-adjusting zero and span, and LED indicators for fault, alarm, and calibration status. Detcon's solid state MOS sensor has an infinite shelf life and is supported by an industry leading 10-year conditional warranty.

Features

- ▶ Performance Certified to ISA 92.0.01 Part I-1998: Performance Requirements for H₂S
- ▶ CSA-US approved for Class I, Division 1, Groups B, C, & D
- ▶ Transmitter design fits all existing Detcon MOS H₂S Sensors dating back 20 years
- ▶ Compatible with PLCs, SCADA, DCS, via 0-20 mA, and/or RS-485, and/or alarm relays
- ▶ Sensor status and parameters accessible via RS-485 (Modbus™)
- ▶ Menu programmable relays standard (two alarms plus fault)
- ▶ Simple menu driven calibration - less than 3 minutes
- ▶ LED display and LED indicators for FAULT and CAL status
- ▶ Plug-in field-replaceable transmitter
- ▶ Response similar to electrochemical sensors: T-50 <30 sec., T-80 <60 sec.
- ▶ VERY wide operating temperature range: -40°C to +75°C
- ▶ 10 year conditional sensor warranty
- ▶ Direct response constant temperature control
- ▶ Withstands exposure to high range concentrations of H₂S and other acid gases
- ▶ Impervious to high moisture environments in both powered and non-powered mode
- ▶ Extensive Fault diagnostics



(shown as PN 966-014520-100 in Aluminum j-box)

Applications

- ▶ Oil and Gas Drilling Rigs
- ▶ Oil and Gas Production Sites
- ▶ Refining and Petrochemical
- ▶ Pulp and Paper Mills
- ▶ Waste Water Treatment Plants

System Specifications

Sensor Type

Continuous diffusion/adsorption
CHEMFET Solid State Metal Oxide Semiconductor

Sensor Life

5 to 10 years typical

Measurement Range

0-20 ppm, 0-50 ppm, 0-100 ppm

Accuracy/Repeatability

±10% of reading or ±2 ppm (greater of)

Response/Clearing Time

T50 <30 seconds

T90 <60 seconds

Outputs

Linear 4-20 mA DC
RS-485 MODBUS-RTU
3 Relays (alarm 1, alarm 2, & fault)
Contacts rated 5 amps

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
EEx d IIB+H2 T4 (Tamb = -40°C to +60°C)

Performance Approvals

ISA 92.0.01 Part I-1998;
H2S Performance Requirements

Safety Approvals

CSA/NRTL (US OSHA Certified)
ATEX
CE Marking
SIL2 FMEDA Rating

Ingress Protection

NEMA 4X, IP66

Warranty

Plug-in detector - 10 year conditional
Transmitter - 2 Years

Environmental Specifications

Operating Temperature Range

-40°F to +167°F; -40°C to +75°C

Storage Temperature Range

-31°F to +131°F; -35°C to +55°C

Operating Humidity Range

5-100% RH non-condensing

Operating Pressure Range

Atmospheric ±10%

Specifications subject to change without notice

Order Guide

 Specify junction box options (below)

PN 966-014520-100 Model TP-624D in Aluminum Junction Box

PN 966-01452B-100 Model TP-624D-316SS in Stainless Steel Junction Box

Mechanical Specifications

Dimensions

10"H (including splashguard) x 6.1"W x 4.3"D
254mmH x 155mmW x 109mmD
Mounting holes (J-box) 5.5"; 140mm center to center

Weight

6 lbs; 2.72kg (w/aluminum j-box)
9 lbs; 4.08kg (w/stainless steel j-box)

Electrical Specifications

Power Input

12-28 VDC

Power Consumption

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

RFI/EMI Protection

Complies with ISO 92.0.01

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
4 LEDs for Alarm 1, Alarm 2, Fault, and Calibration

Relay Outputs

Alarm 1, Alarm 2, and Fault
5A @ 250VAC
5A @ 30VDC

Faults Monitored

Heater, Loop, Input Voltage,
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

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



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Certified