

Model TP-624D

Hydrogen Sulfide Sensor



Description

Model TP-624D is a “Smart” gas detection sensor designed to detect and monitor H₂S in air over the ranges of 0-20 ppm, 0-50 ppm, and 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, Division 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, one-man remote calibration, self-adjusting zero and span, and LED indicators for 2 alarm relays and 1 fault relay and calibration status. Detcon’s solid state MOS sensor is supported by an industry leading 10-year conditional warranty.

Features

- cCSAus 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 sensor: T₅₀ <30sec., T₈₀ <60 sec.
- 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

Applications

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



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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; T80 <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
CSAus
Class I, Division 1, Groups B, C, D (Tamb = -25°C to +40°C)
Class I, Zone 1, Group IIB+H2
cCSA
Class I, Division 1, Groups B, C, D (Tamb = -40°C to +40°C)
Class I, Zone 1, Group IIB+H2
ATEX
Ex d IIB+H2 T4 (Tamb = -40°C to +60°C)

Safety Approvals

cCSAus
ATEX
CE Marking
SIL2 FMEDA Rating

Ingress Protection

IP66

Warranty

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

Environmental Specifications

Operating Temperature Range

-40°C to +40°C; -40°F to 104°F (CANADA)
-25°C to +40°C; -13°F to 104°F (USA)

Storage Temperature Range

-35°C to +55°C; -13°F to +131°F

Operating Humidity Range

5-100% RH non-condensing

Operating Pressure Range

Atmospheric ±10%

Order Guide

PN 966-014520-100 TP-624D Solid State MOS H2S Sensor Assembly Alum Condulet
PN 966-01452B-100 TP-624D-HRT Solid State MOS H2S Sensor Assembly Alum condulet with Hart
PN 9H6-014520-100 TP-624D-HRT Solid State MOS H2S Sensor Assembly Alum condulet with Hart
PN 9H6-01452B-100 TP-624D-HRT Solid State MOS H2S Sensor Assembly 316SS condulet with Hart

Note above part numbers are for 0-100 ppm range. For 0-20 ppm or 0-50 ppm range replace -100 with -020 or -050 respectively.

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

22-28 VDC*

Power Consumption

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

RFI/EMI Protection

Complies with EN 50270

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

* 12 VDC available by special order
Specifications subject to change without notice

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