



## 3M™ Detcon™ Model TP-624D

### Hydrogen Sulfide Sensor

#### Description

Detcon Model TP-624D is a “Smart” gas detection sensor designed to detect and monitor H<sub>2</sub>S 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 H<sub>2</sub>S 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, 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 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 H<sub>2</sub>S 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: T<sub>50</sub> <30sec., T<sub>80</sub> <60 sec.
- 10 year conditional sensor warranty
- Direct response constant temperature control
- Withstands exposure to high range concentrations of H<sub>2</sub>S 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



# 3M™ Detcon™ TP-624D

## Hydrogen Sulfide Sensor

### 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  
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

NEMA 4X, IP66

#### Warranty

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

### 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; -31°F to +131°F

#### Operating Humidity Range

5-100% RH non-condensing

#### Operating Pressure Range

Atmospheric ±10%

### 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 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

*Specifications subject to change without notice*

### Order Guide

PN 965-015420-100 Model TP-524D in Aluminum Junction Box  
PN 965-01542B-100 Model TP-524D-316SS in Stainless Steel Junction Box  
PN 9H5-015420-100 Model TP-524D with HART in Aluminum Junction Box  
PN 9H5-01542B-100 Model TP-524D-316SS with HART in Stainless Steel Junction Box

