TELEDYNE DETCON
Everywhere**you**look™

Model TP-700

Hydrogen Sulfide Sensor

Description

Model TP-700 is a non-intrusive "Smart" sensor designed to detect and monitor H_2S in air over the range of 0-100 ppm using a proprietary solid state metal oxide semiconductor technology. The plug-in, field replaceable detector features over-sized gold-plated connections that help prevent corrosion. The TP-700'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 TP-700 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 TP-700 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) and HART. Detcon's solid state MOS H_2S gas sensor has an infinite shelf life and is supported by a 10-year conditional warranty.

Scrolling Full Message/Text Display
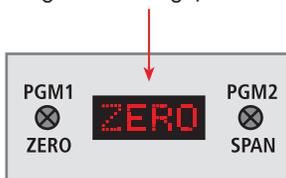
Solid State MOS
(shown as PN 967-014520-100 in SS junction box)

Applications

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

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

System Specifications

Sensor Type
Continuous diffusion/adsorption
CHEMFET Solid State Metal Oxide Semiconductor
Plug-in field replaceable

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

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 +70°C)

Ingress Protection
NEMA 4X, IP66

Safety Approvals
cCSAus
Complies with ISA 92.01 Part 1-1998;
Performance Requirements for H_2S
ATEX
CE Marking
SIL2 Certified to IEC 61508

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

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
1.0A @ 24V

RFI/EMI Protection
Complies with EN50270

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
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

Order Guide   Specify junction box options (below)

PN 967-015520-100	TP-700 Sensor Assembly (no junction box)
PN 967-011520-100	TP-700 Sensor Assembly with Aluminum Junction Box
PN 967-014520-100	TP-700 Sensor Assembly with 316 SS Junction Box
PN 9H7-011520-100	TP-700 with HART in Aluminum Junction Box
PN 9R7-011520-100	TP-700 with RAM in Aluminum Junction Box

Integration Options

Remote Alarm Module (Remote Operation and 2 Alarm Relays plus Fault)
Hart Integration Module (Hart Communication Protocol version 7.0, HART Registered)

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