

Nanotechnology Metal Oxide Semiconductor (NTMOS) H₂S Gas Detector



APPLICATION

Detector Electronics Corporation's (Det-Tronics®) Nanotechnology Metal Oxide Semiconductor (NTMOS) Hydrogen Sulfide (H₂S) stand-alone gas detector delivers an ideal detection solution in challenging environments where electrochemical sensing technologies are not preferred.

The NTMOS H₂S Detector uses the latest Nanotechnology (NT) to ensure the highest performance and reliability. The sensing element is packaged and protected in a rugged stainless steel housing, making it suitable for installation in hazardous locations.

The NTMOS Detector is tested to the ANSI/ISA 92.0.01, Part I-1998, Performance Requirements for Toxic Gas-Detection Instruments: Hydrogen Sulfide. The standard is utilized for the protection of personnel working in hazardous industries, such as in the on/off shore production of oil and gas.

This recommended practice applies to all toxic gas detection instruments that satisfy the performance requirements in ANSI/ISA 92.0.01. It establishes user criteria for the installation, operation, and maintenance of toxic gas detection instruments, while meeting API requirements 14C, RP92.0.02 and others.

FEATURES AND BENEFITS

- Fast response to all H₂S concentrations
- Linear 4-20 mA output signal corresponding to H₂S concentration (non-isolated)
- Performance approved to ANSI/ISA 92.0.01
- Non-intrusive calibration using the internal magnetic reed switch on the Gas Detector Termination Box model GDTB or FlexVu® UD10
- Automatic fault diagnostics via current output
- Detector approved as a stand alone unit and provides automatic calibration initiation capability
- Easily integrated with the Eagle Quantum Premier® (EQP) system using the Analog Input Module (AIM) to provide display and control capabilities
- Designed to provide protection for the hydrophobic filter in high impact risk installations
- Ideal for extreme environmental conditions (onshore and offshore applications)
- Ingress Protection level of IP66/IP67 suitable for outdoor applications.

SPECIFICATIONS

Current Output	4-20 mA.
Measurement Range	0 to 100 ppm.
Input Voltage	18 to 30 Vdc, 24 Vdc nominal.
Input Power	2.5 watts maximum.
Temperature Range	<u>Operating:</u> -40°F to +149°F (-40°C to +65°C). <u>Storage:</u> -40°F to +149°F (-40°C to +65°C).
Humidity Range	5 to 95% RH.
Response Time	T20 ≤ 5.4 seconds with full scale gas applied T50 ≤ 10.8 seconds with full scale gas applied T90 ≤ 33 seconds with full scale gas applied.
Environmental Location	Exposing the detector to certain materials or environments can adversely effect its performance. These materials and environments include: Silicones, Halides (Fluoride, Chlorine, Bromine and Iodine based compounds), Heavy metals, and Acidic environments.
Ingress Protection	IP66/IP67 (with hydrophobic filter and sinter guard) IP53 (without hydrophobic filter).
Cross Sensitivity	500 ppm CO ≤ or = 10 ppm H ₂ S 50 ppm H ₂ ≤ or = 5 ppm H ₂ S 5 ppm NO ₂ ≤ or = 1 ppm H ₂ S 100 ppm Methanol ≤ or = 50 ppm H ₂ S 1000 ppm CH ₄ ≤ or = 10 ppm H ₂ S Cross sensitivity to Volatile Organic Compounds (VOC).
Barometric Pressure	Negligible effect.
Warm-Up Time	Up to 30 minutes.
Calibration	Single point, 50% span with Humidification tube kit, or ampoule calibration required.
Enclosure Material	316 Stainless Steel.
Warranty	24 months from date of manufacture per Terms and Conditions.
Shipping Weight	1.7 pounds (0.77 kilogram).
Dimensions	See Figure 1.

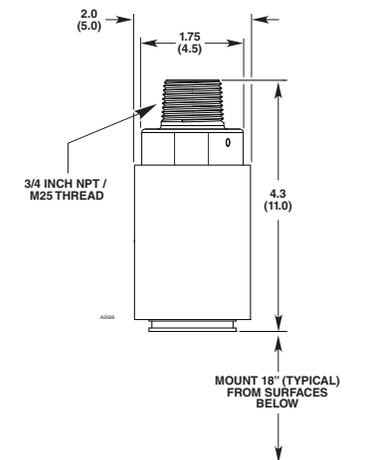


Figure 1—Dimensions of NTMOS Detector in Inches (Centimeters)

Certification



FM: ANSI/ISA-92.0.01
Class I, Division 1, Groups B, C, D
Class I, Division 2, Groups A, B, C, D
-40°C to +65°C (Performance verified)
-40°C to +75°C (Haz Loc Rating)
IP66/IP67 (with hydrophobic filter)
IP53 (without hydrophobic filter)
Acidic atmospheres excluded.



CSA: Class I, Division 1, Groups B, C, D (T5)
Class I, Division 2, Groups A, B, C, D (T5)
-40°C to +75°C (Haz Loc Rating)
IP66/IP67 (with hydrophobic filter)
IP53 (without hydrophobic filter)
Acidic atmospheres excluded.



ATEX/CE: **CE** 0539 II 2 G
Ex d IIC T5 Gb
FM09ATEX0063X
T5 (Tamb = -40°C to +65°C)
IP66/IP67 (with hydrophobic filter and sinter guard)
IP63 (without hydrophobic filter).



EN Standards: EN 50270: 2006
EN 60079-0: 2009
EN 60079-1: 2007
EN 60529: 1991+A1 2000.



IECEx: Ex d IIC T5 Gb
IECEx FMG 09.0011X
T5 (Tamb = -40°C to +65°C)
IP66/IP67 (with hydrophobic filter and sinter guard)
IP63 (without hydrophobic filter).

IEC Standards: IEC 60079-0: 2007
IEC 60079-1: 2007
IEC 60079-0: 2007

Special Conditions for Safe Use (X) / Schedule of Limitations:

The NTMOS Hydrogen Sulfide Toxic Gas Detector shall be connected directly to a junction box or instrument suitable for the area of installation to provide protection for the flying leads.

The NTMOS Hydrogen Sulfide Toxic Gas Detector, when the optional sinter guard is not fitted, meets the impact test requirements according to the low level risk of mechanical danger. Therefore, when the optional guard is not fitted, the NTMOS Hydrogen Sulfide Toxic Gas Detector must be located and installed such that the risk of impact is reduced.

In order to maintain IP66/IP67 Ingress Protection rating, the detector must be mounted vertically at a maximum height of 18 inches from surfaces below.

Specifications subject to change without notice.

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