

SenseH₂™ Hydrogen Sensor Key Technical Specifications



Features

- High sensitivity and selectivity to hydrogen
- Fast response and recovery times
- Immune to signal saturation
- Compact and robust design
- Waterproof automotive grade connector
- 1.0 to 4.5V output, spans 0.2 to 4.0% H₂ in air (5 to 100% LFL)

➤ Overview

Designed for hydrogen monitoring, this ceramic sensor exhibits a highly sensitive, selective, and rapid response to the presence of hydrogen in ambient air. It reliably measures H₂ concentrations over a wide range of temperature and humidity variation and provides a repeatable response, even in the presence of other combustible gases. Additionally, the NTM Sensors' SenseH₂™ is immune to signal saturation upon continuous exposure to low levels of hydrogen, and recovers rapidly and completely upon hydrogen removal.

➤ System Components

Sensor: The sensor element employs a chemi-resistive ceramic technology, which provides accurate and reliable hydrogen detection.

Electronics package: The sensor provides a simple interface with a ratio-metric voltage output (1 to 4.5 VDC; 500mV increments), calibrated to detect up to 4% H₂ in air (100% of the LFL). Diagnostic states (< 1V, >4.5V) are provided to indicate error conditions. Microprocessor-based heater control ensures stable operation, in temperatures ranging from -20 to 80°C. The compact, rugged design and waterproof connector enable use of the SenseH₂™ in a range of application conditions. Mating connectors can be provided for ease of installation.

WARNING: The SenseH₂™ is not a stand alone safety device and does not provide protection from hydrogen explosion. The 1 to 4.5 V output signal, quantifying the hydrogen concentration in air, is intended to be an input to customer safety system, enabling audible alarms, system shutdown, ventilation, or other measures to ensure safe handling and use of hydrogen gas.

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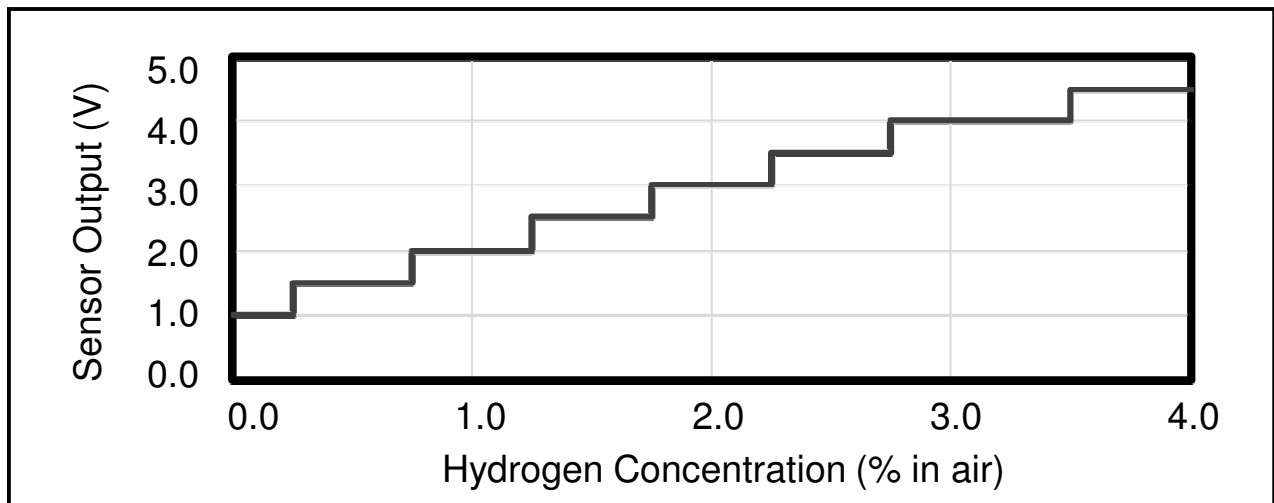
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➤ **Table of Typical Characteristics:**

Metric	Min	Max	Units
Characteristics:			
H ₂ range (in air)	0.2	4.0	%
Voltage input	12	24	Vdc
Output (sensing range)	1	4.5	Vdc @ 50mA
Error state (output signal)	0.0	0.75	Vdc
Error state (output signal)	5.0	5.0	Vdc
Power consumption	0.2	0.3	A
Response time (T90)	—	5	Sec.
Recovery time (T10)	—	5	Sec.
Environmental Conditions:			
Ambient temperature	-20	80	°C
Relative humidity	5	95	%R.H.

➤ **Typical Calibration:**

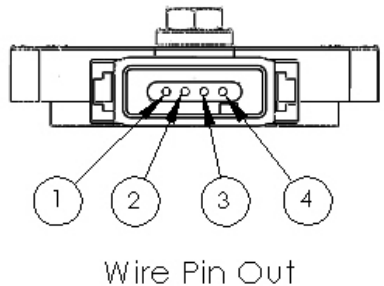
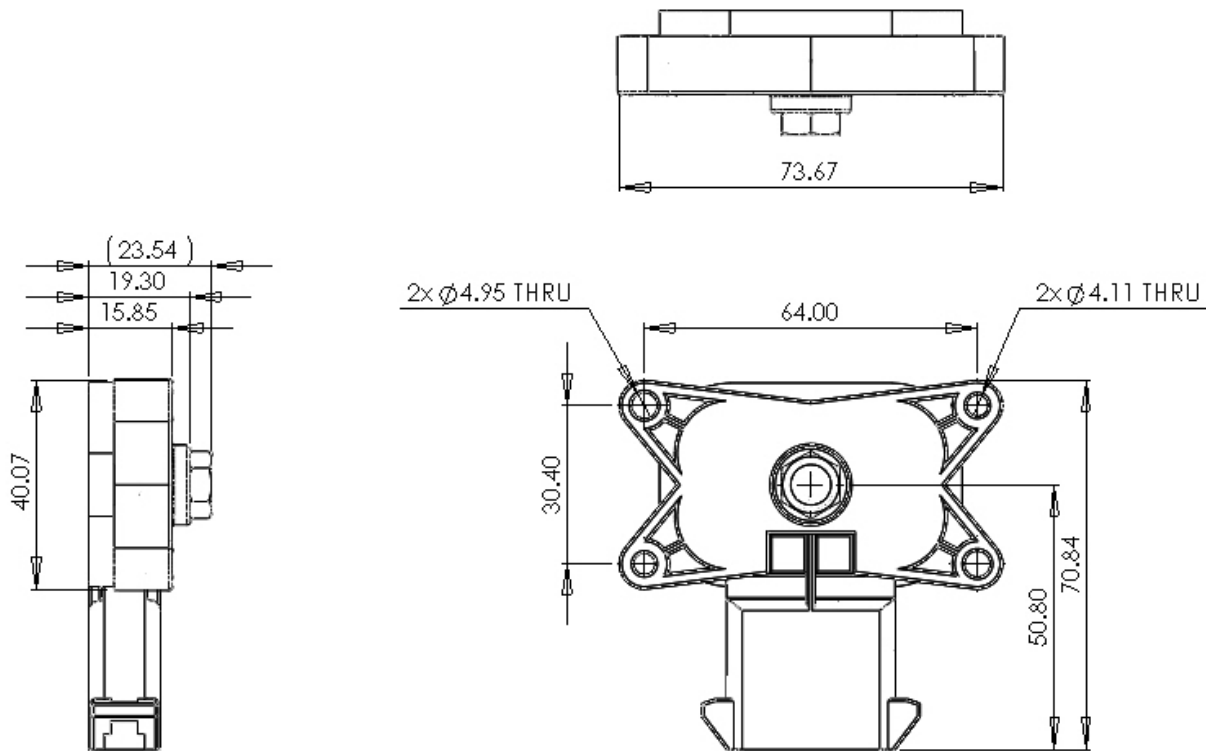


Installation Guidelines:

- Hydrogen has a low molecular weight and is very buoyant. To ensure detection of hydrogen, the sensor must be mounted above the source of the potential hydrogen leak.
- The sensor should be mounted such that the sensing element is facing toward the source of the potential hydrogen leak.
- The sensor should be mounted in a position to minimize exposure to liquids and particulate matter that may obstruct diffusion of hydrogen gas to the active sensing component.
- 12inch wiring harness with mating connector, Deutsch DTLP06, is supplied upon request.

Intended Uses:

- The SenseH₂™ is intended for use as a hydrogen gas detector in the range of 0.2 to 4% hydrogen in air.
- Typical applications include: Stationary fuel cells , Fuel cell powered forklift trucks, Hydrogen refueling stations, Hydrogen generation (electrolyzer) systems, On-site fuel reforming systems, Uninterruptible power supply (UPS) systems monitoring, Telecom systems monitoring, or Laboratory monitoring.



Pin	Symbol	Function	Wire color
1	SIG+	Output Signal (+)	Blue
2	SIG-	Output Signal Ground	Black
3	PWR-	Input Power Ground	Black
4	PWR+	Input Power (+)	Red