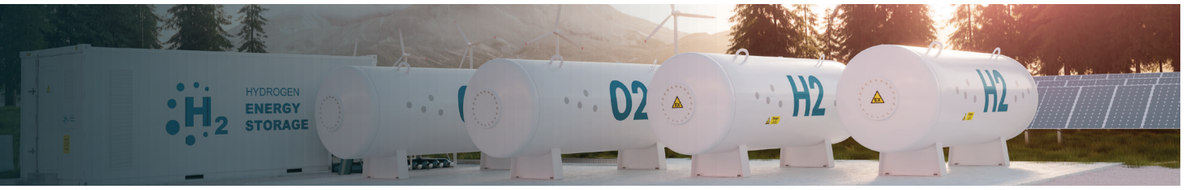
Portable Hydrogen Leak Detector

Sensitivity, Selectivity, Accuracy, and Responsiveness with Peak Precision and Shortest Response Time

21Senses

Incredibly precise and fast response time at close proximity.



Our Portable Hydrogen Leak Detector is powered by patented Solid State Electrochemical Sensor Technology and Novel Reference Electrode

It directly measures the partial pressure of Hydrogen, by diffusion in a gas mixture, making it specific, selective, and intelligent to Hydrogen alone.

It detects hydrogen-specific leaks in close proximity and in various gas backgrounds, including Air, Inert, and Combustible Gases with no cross-sensitivity. It can detect leaks as low as 1 ppm and is durable enough to withstand 100% pure hydrogen exposure.

Our response time of T20 to T90 is just 0.5 to 2.5 seconds, enabling early exposure to diffused Hydrogen, and the reading updates every 1 second.

Additionally, you can bring the probe near the source without the fear of damaging it. Users can conduct multiple confirmatory tests to identify the source of a leak precisely due to the ability of the device to quickly recover from even high levels of hydrogen exposure.

Extremely low concentration detection: Our sensor can detect extremely low concentrations of Hydrogenstarting at 1ppm

Wide choice of Background gases: Detect hydrogen with exceptional specificity, no cross-sensitivity and high accuracy in a choice of background gases, including Air, Helium, Nitrogen, Argon, Methane, Hydrocarbons, and Vacuum.

Ultra-fast response time: T20 to T90 in just 0.5 to 2.5 seconds, enabling early exposure to diffused Hydrogen. The reading updates every 1 second.

Close Proximity Leak Detection: Our sensor can be placed very close to the leak source without the risk of damage.

The product is under certification process for IECEx, ATEX, UL, CSA, and PESO as per region-specific standards equivalent to IEC 60079-0, IEC 60079-11, and IEC 61010.

Internationally Certified Version Coming Soon!

Technical Specification

Hydrogen Concentration Terminology Conversion Table for Ease of Reference
Hydrogen Lower Explosive Limit ('LEL') – 4% H2 v/v in Air

250% H2 LEL = 10% H2 v/v in Air = 100,000 ppm H2 v/v
125% H2 LEL = 5% H2 v/v in Air = 50,000 ppm H2 v/v
100% H2 LEL = 4% H2 v/v in Air = 40,000 ppm H2 v/v
50% H2 LEL = 2% H2 v/v in Air = 20,000 ppm H2 v/v
25% H2 LEL = 1% H2 v/v in Air = 10,000 ppm H2 v/v
1% H2 LEL = 0.04% H2 v/v in Air = 400 ppm H2 v/v

Performance Parameters	Specifications					
Selectable Range	Range values are defined as H2 v/v in Background Gas					
	Range 1	**Range 2**	**Range 3**	**Range 4**	**Range 5**	**Range 6**
Start	0 ppm	0 ppm	0 ppm	0%	0%	0%
Span	2000 ppm	5000 ppm	2%	4%	5%	10%
Resolution	1 ppm	5 ppm	0.001%	0.002%	0.002%	0.005%
MDL	1 ppm	25 ppm	0.005%	0.005%	0.005%	0.01%
Accuracy (MV=Measured Value)	± (5 ppm + 2% of MV)	± (5 ppm + 2% of MV)	± (10 ppm + 2% of MV)	± (25 ppm + 2% of MV)	± (25 ppm + 2% of MV)	± (50 ppm + 2% of MV)
Selectable Output Signal	**Air**	**Helium**	**Nitrogen**	**Argon**	**Combustibles**	**Oxygen**

Common Features	Specifications
Display	Backlit Graphical 4-line LCD Display for concentration readout, bar graph, battery status indication, overrange indication, full scale range selected, and Tare function ON/OFF.
Audio Alarm	The audio alarm indication is sounded as soon as any Hydrogen is detected, to ensure operator can focus on locating the leak, without having to look at the display. Once leak is identified, the operator can view the display to measure the magnitude of leak.
Visual Alarm	Red LED glows as soon as any Hydrogen is detected.
Start-Up Time	2 seconds
Response Time	T20 to T90 is just 0.5 to 2.5 seconds. Reading updates every 1 second.
Cross Sensitivity	No cross sensitivity to other combustible and reducing gases
Cross Sensitivity	**No damage on short term exposure to even 100% pure Hydrogen** *1. In-house lab tested for 15 second exposure to 100% pure Hydrogen.* *2. In-house lab tested for 5 minutes exposure to 40% Hydrogen in Nitrogen.* *3. In-house lab tested for 10 minutes exposure to 20% Hydrogen in Methane.*
Battery Power	Rechargeable 3.7V 1150mAh Lithium-Ion battery, which lasts up to 24 hours of continuous operation on a single full charge.
Charger	230VAC mains charger supplied with the product. Switch Mode. Input power supply 100- 300VAC at 50/60 Hz. Output power supply 5.5 VDC, 750mA. Barrel type jack (2 mm).
Operating Temperature	-20° to +65°
Storage Temperature	-20° to +65°
Operating Pressure	1 Bar to 1.5 Bar
Humidity	98% RH at 40° (Non-condensing)
Enclosure	Rugged and sleek enclosure for tough outdoor as well as indoor applications.
Handheld Unit	ABS Plastic enclosure measuring 165mm x 85mm x 30mm, with display and membrane keypad for operation, tare, wake up, mode selection and calibration.
Sensor Probe	Protruding sensor (plated copper): Threaded 3/8 BSP (male) x 8.7mm Length. Protection cap (aluminium-powder coated): Threaded 3/8 BSP (female) x 8.7mm Length. Shielded pipe (aluminium-powder coated) housing sensor and head-on preamp assembly: ø 19mm x 110mm Length. Connecting bent pipe (aluminium-powder coated): ø 10mm x 105mm Length. Handle (PVC): ø 26mm x 151.5mm Length.
Weight	Handheld Unit: 220 grams Sensor Probe: 280 grams
Sensing Surface Position	Flush against gas exposure hole ensuring early exposure to diffused Hydrogen
Ingress Protection	IP 65 as per IS/IEC 60529:2001
Gas Exposure Method	Diffusion. Gas exposure aperture ID 4 mm.
Calibration Periodicity	Recommended cycle: Once in every 6 months for high accuracy applications. Mandatory cycle: Once in every 12 months.
Calibration Procedure	The sensor can be calibrated within 5 minutes using MNST's Gas Calibration Setup, which consists of a calibration gas holder (for interfacing with sensor), a flexible PU pipe, rotameter and a pre-certified calibration gas cannister. The calibration routine is in-built in the handheld unit. Detailed procedure for calibration and a quote for the Gas Calibration Setup can be requested on our website.

Exciting developments are on the horizon!

Use Cases

Industries:
Oil & Gas, Power Generation & Transmission, Petrochemicals, Fertilizers, Pharmaceuticals, Chemicals, Nuclear Research, and Steel.

Electrolysers:
PEM, Alkaline, SOEC and other burgeoning technologies

Fuel Cells: PEM and SOFC

Hydrogen Supply Chain:
Transport Pipelines, Containers, Storage Sites, Tankers, and Fuelling Pumps

Battery Rooms:
Flooded or VRLA Lead Acid and Nickel cadmium battery banks in industries and Datacentres, Submarines, Ships, Forklifts and Heavy Equipment.

Strategic Sectors:
Space Exploration, Nuclear Research, Defence, and R&D

New Age Applications:
Ships, Aircrafts, Backup Generators, Biomass to H2, H2-PNG Blending, Other Green Hydrogen Production Techniques

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