



HYDROGEN DETECTION, LEAK LOCATION AND ANALYSER SOLUTIONS

PORTABLE HYDROGEN GAS LEAK LOCATORS: PORTaHY SERIES

MODEL: PORTaHY-G-09-04070102102010

APPLICATION: HYDROGEN LEAK LOCATION IN POWER GENERATION PLANTS



Widest Range of Parametric Selection Available For

Operating Range | Resolution | Sensitivity | Response Time | Sensor Size | Sensor Output | Enclosure Type
Hazardous & Non-Hazardous Area Compliant | Ingress Protection IP 65 to IP 68 | Process Analysis

Bespoke Customized Solution Development

Our high-class R&D Lab and Calibration + Repair facility can cater to most challenging requirements

Manufactured By: Multi Nano Sense Technologies Private Limited

RO: RH 14, Swapnil Enclave, Amravati Road, Kachimet, Nagpur, India - 440023

R&D: Block 324, First Floor, Sheela Complex, Amravati Road, Wadi, Nagpur, India - 440023

M: +91 99205 63787 | W: www.multinanosense.com | CIN: U74999MH2017PTC293374

General Description

PORTaHY-G-09-04070102102010 is a battery-operated portable handheld controller and display unit interfaced with Multi Nano Sense Technologies' proprietary Hydrogen sensor housed in a Bent Neck Probe. It is extremely sleek, light, and easy to handle with enhanced features for user friendly application. The ergonomically designed probe with a bent neck is ideal to sense even the minutest leaks occurring from difficult to reach places on the test object. It comes with the ability to perform gas calibration at the user's end using our Gas Calibration Kit. The transducer probe is detachable and can be easily replaced. The probe has the widest sensitivity range of **0% to 9.999% H₂ v/v in Air** with high resolution of **10 PPM**. It features an auto-sleep mode for battery life optimization and usable up to **24 hours** of continuous operation on full charge. The instrument comes with a handy carrying case.



Application Description

PORTaHY-G-09-04070102102010 is used for precisely locating Hydrogen leaks in power generation plants, as a part of routine maintenance and emergency response procedures, to protect the plant from Hydrogen explosions by regularly monitoring the susceptible points for sources of leaks. It is the most capable sensor technology for critical applications where 100% pure Hydrogen is stored, transported, and transacted. The sensor does not get damaged even upon exposure to high concentrations of H₂ and has extremely high sensitivity to minutest of leaks. As the sensor faces no cross sensitivity from other combustible and reducing gases, users can rely on the sensor for precise and repeatable leak location. Our sensors offer immense advantages in improving the efficiency of the maintenance activity by reducing the process time required for evaluating multiple leak points, owing to the rapid response and recovery time.

Key Advantages

- **Small & Light Form Factor:** The entire probe and display system weighs less than 550 grams.
- **Fastest response time:** Instantaneous response with maximum lag of 3 seconds.
- **No damage on over-exposure:** Even if sensor is momentarily exposed to 100% pure Hydrogen.
- **No Cross Sensitivity:** Other combustible and reducing gases do not interfere with sensor functioning.
- **No False Alarms:** Highly reliable operation due to selective sensing of Hydrogen alone.
- **Very Fast Recovery:** Allows User to quickly move on to the next measurement point.
- **Very Sensitive:** Sensing elements are tailor made to suit detection as low as 10 ppm.
- **High Resolution:** Intricate and high precision electronics ensure 10 ppm resolution over entire range.
- **Long Life:** Capex cost is spread over 4 to 6 years.
- **User Friendly Calibration & Comprehensive AMC Option:** Low cost and hassle-free after sales service.
- **End to End Support:** Remote as well as on-site support. Custom development capability.
- **Expert Consultancy:** Guidance for ideal product selection from our vast range of options.

Manufactured By: Multi Nano Sense Technologies Private Limited

RO: RH 14, Swapnil Enclave, Amravati Road, Kachimet, Nagpur, India - 440023

R&D: Block 324, First Floor, Sheela Complex, Amravati Road, Wadi, Nagpur, India - 440023

M: +91 99205 63787 | W: www.multinanosense.com | CIN: U74999MH2017PTC293374

Technical Specifications

HAND-HELD DISPLAY UNIT		
Sr. No.	Parameters	Description
1	Measurement Range of Hydrogen and Scale	0 to 9.999 % H ₂ v/v in Air
2	Resolution	10 ppm i.e. 0.001% H ₂ v/v in Air
3	Accuracy	+/- 5% of displayed reading
4	Buzzer	Internal buzzer with beeping frequency proportional to H ₂
5	Visual Alarm	Flashing red LED
6	Display & Readout	4-line, graphical LCD display: Line 1: Selected FS range indication, over range indication and battery status Line 2: Tare status Line 3: Concentration readout of H ₂ - X.XXX % (max 9.999% H ₂ in Air) Line 4: Concurrent bar graph for %FS
7	Device Switching	On/Off switch Note: When not in use, switch must be turned Off
8	Storage Conditions	-20~50°C, 96%RH
9	Enclosure	Plastic body and membrane key board
10	Update Period	Reading updates under 1 second
11	Response Time	Instantaneous <3 seconds
12	Operating Temperature & Humidity	32 to 122° F (0-50°C), 0-96% RH, non-condensing
13	Battery Life	Up to 24 hours continuous use on a fully charged battery
14	Power & Charger	Power: Battery Operated using Li-Ion battery 3.7 V/ 1150mAH. Charger: Switch Mode, I/P 100- 300V AC, 50/60 Hz, O/P 5.5 V DC,750mA, Barrel Type(2 mm)
15	Dimension	Indicator size 165x85x30 mm
16	Controls	Multi-function membrane keyboard: 1. Arise from Auto-Sleep Mode 2. Highest reading in a cycle 3. Tare On/Off 4. Programmable memory switch 5. Toggling button 6. Selection button
17	Accessories	Polyurethane insert in carrier bag
18	Weight	220 gm approximately
19	Calibration	1. Service mode enables viewing stored references 2. External Calibration mode enables user end calibration with proper gas calibration kit (can be supplied separately at additional cost)
20	Compatible Transducers	Based on Solid state chemical sensor based on solid electrolyte and proprietary solid reference electrode (Indian Patent No. 252998 w.e.f 14/06/2007). It measures direct partial pressure of Hydrogen in any gaseous fluid environment. It is specific, selective, and intelligent to Hydrogen.
21	Connection with Bent Neck Probe	Mini round connector (male) at the end of cable originating from the Display unit. End to end connection cable of 1 meter in length (Standard).
22	Replaceable Bent Neck Probe	The Bent Neck Probe can be replaced easily for upgrading to enhanced versions or on account of physical damage.

Manufactured By: Multi Nano Sense Technologies Private Limited

RO: RH 14, Swapnil Enclave, Amravati Road, Kachimet, Nagpur, India - 440023

R&D: Block 324, First Floor, Sheela Complex, Amravati Road, Wadi, Nagpur, India - 440023

M: +91 99205 63787 | W: www.multinanosense.com | CIN: U74999MH2017PTC293374

BENT NECK SENSOR PROBE		
Sr. No.	Parameters	Description
1	Transducer Description	3 Wires in metal housing containing sensor & Head On Pre-Amplifier in enclosed Metal Housing. Intrinsically safe. Rigid probe extension of running length 373 mm and standard wire length 1 meter.
2	Specificity	Specific & selective only to Hydrogen
3	Sensor Technology	Solid State Chemical Sensor based on solid electrolyte and proprietary solid reference electrode (Indian Patent No. 252998 w.e.f 14/06/2007). It measures direct partial pressure of Hydrogen in any gaseous fluid environment.
4	Dimensions	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: \varnothing 19mm x 110mm Length Connecting bent pipe (aluminium-powder coated): \varnothing 10mm x 105mm Length Handle (PVC): \varnothing 26mm x 151.5mm Length
5	Sensor Signal	Self-Generated
6	Pre Amplification End Connection	3-wire, 2-wire supply (3.7 Volt DC), one wire output
7	Sampling	By Diffusion, Gas Aperture greater or equal to \varnothing 3mm
8	Housing Material	Protruding sensor: Plated Copper Protection cap: Powder Coated Aluminium Shielded pipe housing sensor and head-on preamp assembly: Powder Coated Aluminium Connecting bent pipe: Powder Coated Aluminium Handle: PVC
9	Response Time	Instantaneous < 3 seconds.
10	Accuracy	\pm 5 % FSD
11	Transducer Power	3.7 Volts, (\pm 10%), 10mA
12	Display Unit Connectivity	3-core wire head-on preamp soldered at sensor end, terminating at mini round connector (female) at Bent Neck Probe handle end.
13	Output Impedance	20 ohms DC
14	Maximum o/p current	12 mA
15	Weight	280 gm approximately

Manufactured By: Multi Nano Sense Technologies Private Limited

RO: RH 14, Swapnil Enclave, Amravati Road, Kachimet, Nagpur, India - 440023

R&D: Block 324, First Floor, Sheela Complex, Amravati Road, Wadi, Nagpur, India - 440023

M: +91 99205 63787 | W: www.multinanosense.com | CIN: U74999MH2017PTC293374

