

SNIFFER ⁴³⁰

User Manual

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The use and principle of application

1. The **SNIFFER⁴³⁰** system is used to pinpoint leaks in pipes or vessels using the tracer gas technique. The system consists of a measurement device and a wireless hydrogen (H₂) sensor (Figures 1-2). The tracer gas used is a mixture of 95% nitrogen and 5% hydrogen gas. The **SNIFFER⁴³⁰** system is specifically useful for detecting small leaks in underground and under-floor water lines.
- 2.
3. The principle of operation is based on the injection of tracer gas under pressure into an inspected piping or vessel, followed by a step-by-step search for the area where the tracer gas is escaping. Tracer gas presence is detected by the H₂ sensor, which wirelessly transfers gas readings via Bluetooth to the device. The device converts the readings into parts per million (PPM) H₂ values and presents them graphically to the user. In most cases, the area where the maximum PPM values were observed corresponds to the leak position. However, in some cases, such as under-floor jacketed pipes or pipes that are partially underlying soil and concrete slab, the actual position of leaks can be located at some distance from the area where maximum PPM levels were measured.



Figure 1. **SNIFFER⁴³⁰** Device



Figure 2. **SNIFFER⁴³⁰** H₂ Sensor

Safety and Liability

This manual contains important information related to safety and proper use of the **SNIFFER⁴³⁰** system. Read it carefully before the first use of the equipment. Keep this manual for future reference.

Use the **SNIFFER⁴³⁰** system only for the intended use described in Section 1 of this manual.

Keep the system away from direct sunlight.

Do not immerse the system in water or sludge.

Do not operate the system in areas with high dust, sand, or powder concentration.

Safety instructions related to the use, storage, and transport of tracer gas pressure vessels, hoses, manometers, and other pressure equipment, as well as the procedure of tracer gas injection, are outside the scope of this manual and must be obtained from the supplier of the pressure equipment.

The user is solely responsible for the use of the **SNIFFER⁴³⁰** system, measurement of gas readings, interpretation of readings and their validity, professional conclusions, leak detection, excavations related to leak exposure, and all other works or factors related to the system operation or leak detection. The producer or reseller of the **SNIFFER⁴³⁰** system is not liable for any damages arising from the use of the system or decisions taken based on the system performance or readings.

Warranty

The **SNIFFER⁴³⁰** system comes with a one-year limited warranty.

The warranty does not cover any mechanical damages.

The warranty is immediately void in case of improper use, alteration, modification, or opening the **SNIFFER⁴³⁰** Device, H2 Sensor, AC adaptor, or any of their components.

Technical Specifications

Table 1 summarizes the technical specifications of the **SNIFFER 430** system.

SNIFFER 430 device	Specifications
Screen size and type	Capacitive touch-screen, 7 inch
Power	Replaceable Li-Ion 3.7V 3000mAh (or higher) 18650 batteries (2 units, included) Power adapter: Input: AC 100-240V, 50-60Hz Output: DC 12V, 5A
Dimensions	7.75 x 4.76 x 1.42 inches (without silicone cover) 8.19 x 5.20 x 2.09 inches (with silicone cover)
Operational temperature range	-14°F to 122°F

SNIFFER 430 sensor	Specifications
Gas detector	Hydrogen, H ₂ gas
PPM readings resolution	1.0 PPM H ₂
Gas sensor heat-up time	1.5 to 10 minutes (may vary under different environmental conditions)
Gas sensor pump flow-rate	0.4 gallons per minute (GPM)
PPM update rate	1.0 second
Sensor to Device communication	Wireless communication: Bluetooth Low Energy (BLE4) Communication distance: 30 feet in open space
Power	Replaceable Li-Ion 3.7V 3000mAh (or higher) 18650 battery (1 unit, included)

	Power adapter: Input: AC 100-240V, 50-60Hz Output: DC 12V, 5A Electric plug type: 2-pins
Dimensions	Length: 31.5 inches Sensor diameter: 2.36 inches Rubber suction cup diameter: 3.94 inches
Operational temperature range	-14°F to 122°F

Package and scope of delivery	Specifications
SNIFFER 430 system	SNIFFER 430 system package (Figure 3) includes: <ol style="list-style-type: none"> 1. SNIFFER 430 Device 2. SNIFFER 430 H2 Sensor 3. AC power adapter 4. Silicone rubber protection case for SNIFFER 430 Device 5. Neck strap and hand strap 6. Rugged plastic case
Package dimensions	18.11 x 13.39 x 7.48 inches
Package weight	approximately 11.7 lbs

Table 1. Technical data of **SNIFFER 430**



Figure 3. SNIFFER⁴³⁰ System kit

Prior to First-Time Use

Install a 18650 lithium battery into the battery compartment of the sensor. The battery should be placed with the positive terminal facing the "+" sign marked in the battery compartment.

Install two 18650 lithium batteries into the battery compartment of the device. The batteries should be placed according to the "+" signs marked in the battery compartment.

Connect the charger to the sensor and the device. Check that the charge illuminators are red and switch on the sensor and the device.

The battery has to be fully charged before first-time use.

Remove the charger, and the sensor and the device will continue to work after this initialization.

Operation

Switch on Device and H2 Sensor in an area where no traces of H2 gas are present. The Device On/Off button is located on the top edge of the device (Figure 4). The H2 Sensor On/Off button is located on the top edge of the H2 Sensor (Figure 4).

Once the Device detects the wireless H2 Sensor, the SENSOR CONNECTED button will be shown in blue color (Figure 5).

Switch on the H2 Sensor pump using the PUMP button (Figure 5) on the Device screen when the PREPARING message disappears.

After the H2 Sensor is switched on, initial heating of the sensor is performed (the system cannot be used during the heat-up time). Once the H2 Sensor is available for work, a beep sound will begin. Note: Please note that the initial values of PPM may be above zero due to

different factors such as air humidity or traces of gas trapped inside the sensor from the previous use. In such a case, the user can wait several more minutes with the H2 Sensor pump switched on until the PPM value drops to zero. We recommend always keeping the pump working to allow fast air circulation through the H2 Sensor. Even if the initial PPM values are above zero for any reason, it does not limit or prevent performing a leak detection.

Stream tracer gas under pressure into piping or vessel after closing all valves and openings through which gas can escape.

Walk slowly along the pipe or vessel, while directing the H2 Sensor towards the examined structure.

When H2 gas is detected, the PPM value will rise. Walk around the area where gas is detected to establish where PPM values are the highest. Take PPM readings using the TAKE A READING button (Figure 5) to assist in finding the area with the highest PPM readings. This area may have the highest probability of a leak (but not always).

Push the speaker button (Figure 5) to switch on/off the beeping sound used to assist in leak detection.

Adjust the brightness of the screen using the + and – buttons (Figure 5). Clear the reading graph by pressing the CLEAR button (Figure 5).

At the end of the work, switch off the device using the Device On/Off button on the screen (Figure 5) and wait until the screen switches off. Switch off the H2 Sensor by pressing the On/Off button (Figure 4).

Clean the Sensor filter from large particles using a brush if needed.



Figure 4. **SNIFFER 430** Device and H2 Sensor

1. Device On/Off button
2. Device AC adapter power socket
3. Device battery status LED
4. Device reset button
5. H2 Sensor On/Off button
6. Air outlet
7. H2 Sensor AC adapter power socket
8. H2 Sensor battery status LED

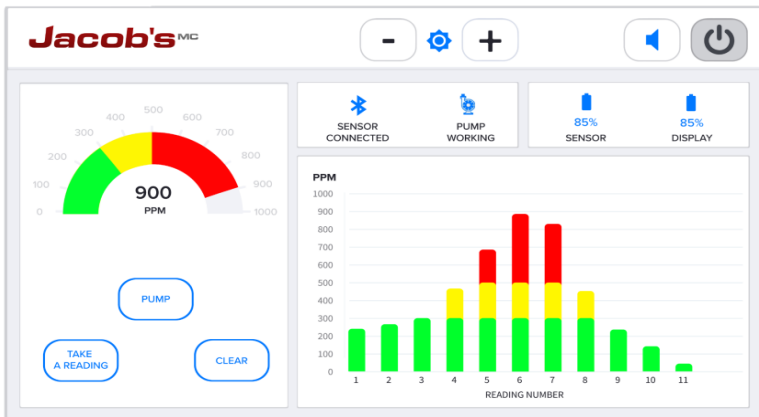


Figure 5. **SNIFFER 430** Device Software

Troubleshooting

	Problem	Solution
1	Device does not detect the H2 Sensor	Check if the H2 Sensor is switched on
2	Gas readings are reducing too slowly after exposure to tracer gas	Check if the sensor air outlet (small opening on the top edge of H2 Sensor, see Figure 4) is blocked. Use a small diameter wire to clean the opening. If this does not solve the problem, contact service for further assistance.
3	Device shows a non-zero value when switched on	Turn on the pump on the H2 Sensor and wait until PPM values drop
4	Device does not switch on (no blue light on the switch button)	Press the reset button located on the left side of the power jack inlet on the device's top edge (Figure 4)