

# USER MANUAL



# SNIFFER 430

The Ultimate Tracer Gas Leak Detection System

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## 1. The use and principal of application

- 1.1. **SNIFFER** <sup>430</sup> system (**System**) is used to pinpoint leaks in pipes or vessels by the tracer gas (a mixture of 95 % nitrogen and 5% hydrogen gas) technique. **SNIFFER** <sup>430</sup> system consists of a measurement **Device** and a wireless hydrogen **H2 Sensor** (Figures 1-2) used to detect and measure hydrogen gas concentration in the air. **SNIFFER** <sup>430</sup> is specifically useful for detection of small leaks in underground and underfloor water lines.
  
- 1.2. The principle of operation is based on injection of tracer gas under pressure into an inspected piping or vessel, followed by step-by-step search for the area where the tracer gas is escaping. Tracer gas presence is detected by the H2 Sensor, which transfers gas readings wirelessly (Bluetooth) into Device. The Device converts the readings into Parts Per Million (PPM) H<sub>2</sub> values and graphically presents them to the user. The area where the maximum PPM values were observed, in most cases, corresponds to the leak position. However, in some cases, such as underfloor jacketed pipes or pipes that are partially underlying beneath 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. **SNIFFER** <sup>430</sup> Device.



Figure 2. **SNIFFER** <sup>430</sup> H<sub>2</sub> Sensor.

## 2. Safety and Liability

- 2.1. This manual contains important information related to safety and proper use of the **SNIFFER** <sup>430</sup> system. Read it carefully before the first use of the equipment. Keep this manual for future reference.
- 2.2. Use **SNIFFER** <sup>430</sup> system only for the intended use described in Section 1 of this manual.
- 2.3. Keep the system away from direct sunlight.
- 2.4. Do not immerse in water or sludge.
- 2.5. Do not operate in areas with high dust, sand or powder concentration.
- 2.6. Safety instructions related to 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 out of scope of this manual and must be obtained from the supplier of the pressure equipment.
- 2.7. The user is solely responsible for the use of the 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 system is not liable for any damages arising from use of the system or decisions taken based on the system performance or readings.

**3. Warranty**

- 3.1. One-year limited warranty.
- 3.2. The warranty does not cover mechanical damages.
- 3.3. Warranty is void immediately in case of improper use, change, modification or opening of **SNIFFER<sup>430</sup>** Device, H2 Sensor, AC adaptor or any of their components.

**4. Technical Specifications**

Table 1 summarizes technical specifications of the **SNIFFER<sup>430</sup>** system.

Table 1. Technical data of **SNIFFER<sup>430</sup>**.

<b>SNIFFER<sup>430</sup> device</b>	<b>Specifications</b>
Screen size and type	Capacitive touchscreen, 7 inch
Power	Built-in Li-Ion 3.7v 3000mAh 18650 batteries (2 units) Power adaptor: Input: AC 100-240v 50-60Hz Output: DC12v 5A
Dimensions	197 x 121 x 36 mm without silicone cover 208 x 132 x 53 mm with silicone cover
Operational temperature range	-10°C to 50°C

<b>SNIFFER<sup>430</sup> sensor</b>	<b>Specifications</b>
Gas detector	Hydrogen, H <sub>2</sub> gas
PPM readings resolution	1 PPM H <sub>2</sub>
Gas sensor heat up time	1.5-10 minutes (vary under different environmental conditions)
Gas sensor pump flow rate	1.5 liters/sec
PPM update rate	1 sec
Sensor to Device communication	Wireless (Bluetooth BLE4), 10-meter communication distance in open space
Power	Built-in Li-Ion 3.7v 3000mAh 18650 battery (1 unit) Power adaptor: Input: AC 100-240v 50-60Hz Output: DC12v 5A Electric plug type: EU (2 pins)
Dimensions	Total length: 800 mm Sensor diameter: 60 mm Rubber suction cup diameter: 100 mm
Operational temperature range	-10°C to 50°C

<b>Package and scope of delivery</b>	<b>Specifications</b>
<b>SNIFFER<sup>430</sup> system</b>	<b>SNIFFER<sup>430</sup> system package (Figure 3)</b> includes: <ol style="list-style-type: none"> <li>1. <b>SNIFFER<sup>430</sup> Device</b></li> <li>2. <b>SNIFFER<sup>430</sup> H2 Sensor</b></li> <li>3. AC power adapter</li> <li>4. Silicon rubber protection case for <b>SNIFFER<sup>430</sup> Device.</b></li> <li>5. Neck strip and hand strip</li> <li>6. Rugged plastic case</li> </ol>
Package dimensions	56 x 23 x 46 cm
Package weight	8.4 kg



Figure 3. **SNIFFER** <sup>430</sup> System Kit.

## 5. Operation

- 5.1. Switch on Device and H<sub>2</sub> Sensor in an area where no traces of H<sub>2</sub> gas are present. Device On/Off button is located on the top edge of Device (Figure 4). The H<sub>2</sub> Sensor On/Off button is located on the top edge of H<sub>2</sub> Sensor (Figure 4).
- 5.2. Once Device detects the wireless H<sub>2</sub> Sensor, the SENSOR CONNECTED button will be shown in blue color (Figure 5).
- 5.3. Switch on H<sub>2</sub> Sensor pump using the PUMP button (Figure 5) on Device screen.
- 5.4. After the H<sub>2</sub> Sensor is switched on, initial heating of the sensor is performed (the system cannot be used during the heat up time). Once the H<sub>2</sub> Sensor is available for work a beep sound begins.  
**Note:** Please note that initial values of PPM may be above zero due to different factors such as air humidity or traces of gas trapped inside of the sensor from the previous use. In such a case, the user can wait several more minutes with the H<sub>2</sub> Sensor pump switched on, until the PPM value will drop to zero. We recommend always keep the pump working to allow fast air circulation through H<sub>2</sub> Sensor. Even if the initial PPM values are above zero for any reason, it does not limit or prevent performing a leak detection.
- 5.5. Stream tracer gas under pressure into piping or vessel after closing all valves and openings which gas can escape through.
- 5.6. Walk slowly along the pipe or vessels, while directing H<sub>2</sub> Sensor towards the examined structure.
- 5.7. When H<sub>2</sub> gas is detected, PPM value will rise. Walk around the area where gas is detected to establish where PPM values are the highest. Take PPM readings using 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 leak (but not always).
- 5.8. Push on the speaker button (Figure 5) to switch on/off beeping sound used to assist in leak detection.
- 5.9. Adjust the brightness of the screen using + and – buttons (Figure 5).
- 5.10. Clear reading in the reading graph by pressing CLEAR button (Figure 5).
- 5.11. 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 H<sub>2</sub> Sensor by pressing a Switch On/Off button (Figure 4).
- 5.12. Clean Sensor filter from large particles using a brush if needed.





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

- (1) Device On/Off Device 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

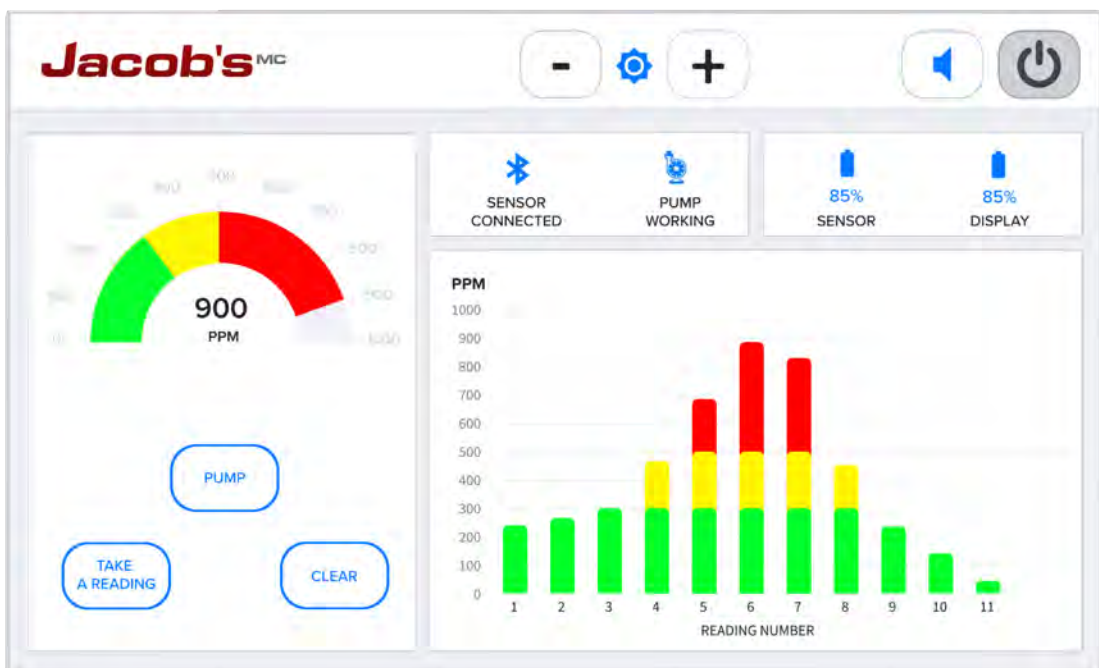


Figure 5. **SNIFFER** 430 Device Software.

**6. Troubleshooting**

	<b>Problem</b>	<b>Solution</b>
1	Device do not detect the H2 Sensor	Check if H2 Sensor is switched on
2	Gas readings are reducing too slow after exposure to tracer gas	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. Contact service if it does not solve the problem
3	Device shows non-zero value when switched on	Turn on the pump on 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 located the device's top edge (Figure 4)



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