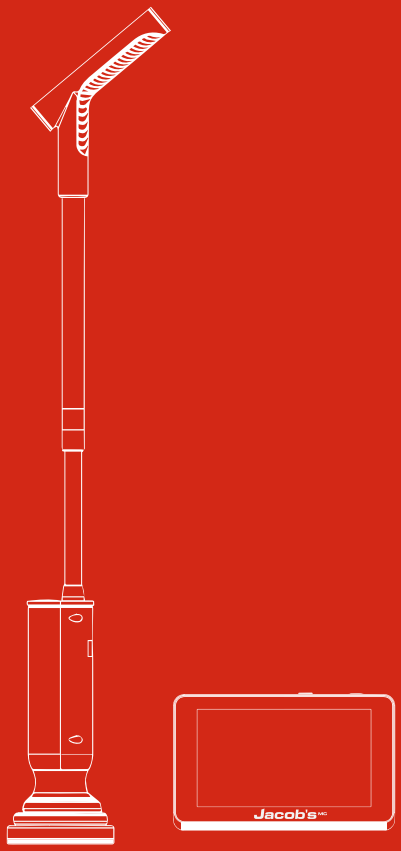
USER MANUAL



SNIFFER 430

The Ultimate Tracer Gas Leak Detection System

Table of Contents

1. The use and principal of application

1.1. **SNIFFER** [430] 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** [430] 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** [430] 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_2 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 430** Device.

Figure 2. **SNIFFER** [430] H_2 Sensor.

2. Safety and Liability

2.1. This manual contains important information related to safety and proper use of the **SNIFFER** [430] system. Read it carefully before the first use of the equipment. Keep this manual for future reference.

2.2. Use **SNIFFER** [430] 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 430** Device, H2 Sensor, AC adaptor or any of their components.

4. Technical Specifications

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

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

SNIFFER 430 device	Specifications
Screen size and type	Capacitive touchscreen, 7 inch
Power	Replaceable Li-Ion 3.7v 3000mAh 18650 batteries (2 units, not included) 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

SNIFFER 430 sensor	Specifications
Gas detector	Hydrogen, H_2 gas
PPM readings resolution	1 PPM H_2
Gas sensor heat up time	1.5-10 minutes (vary under different environmental conditions)
Gas sensor pump flow rate	1.5 liters/min
PPM update rate	1 sec
Sensor to Device communication	Wireless (Bluetooth BLE4), 10-meter communication distance in open space
Power	Replaceable Li-Ion 3.7v 3000mAh 18650 battery (1 unit, not included)

	Power adaptor: Input: AC 100-240v 50-60Hz Output: DC12v 5A Electric plug type: EU (2 pins)
Dimensions	Length: 800 mm Sensor diameter: 60 mm Rubber suction cup diameter: 100 mm
Operational temperature range	-10°C to 50°C

Package and scope of delivery	Specifications
SNIFFER [430] system	**SNIFFER** [430] system package (Figure 3) includes: 1. **SNIFFER** [430] Device 2. **SNIFFER** [430] H2 Sensor 3. AC power adapter 4. Silicon rubber protection case for **SNIFFER** [430] Device. 5. Neck strip and hand strip 6. Rugged plastic case
Package dimensions	46 x 34 x 19 cm
Package weight	5.3 kg

Figure 3. **SNIFFER 430** System kit.

5. Operation

5.1. Prior to first-time use:

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

5.1.2. 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.

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

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

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

5.2. Switch on Device and H2 Sensor in an area where no traces of H_2 gas are present. Device On/Off button is located on the top edge of Device (Figure 4). The H2 Sensor On/Off button is located on the top edge of H2 Sensor (Figure 4).

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

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

5.5. 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 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 H2 Sensor pump switched on, until the PPM value will drops to zero. We recommend always keep the pump working to allow fast air circulation through H2 Sensor. Even if the initial PPM values are above zero for any reason, it does not limit or prevent performing a leak detection.

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

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

5.8. When H2 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).
5.9. Push on the speaker button (Figure 5) to switch on/off beeping sound used to assist in leak detection.
5.10. Adjust the brightness of the screen using + and – buttons (Figure 5).
5.11. Clear reading in the reading graph by pressing CLEAR button (Figure 5).
5.12. 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 H2 Sensor by pressing a Switch On/Off button (Figure 4).
5.13. 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

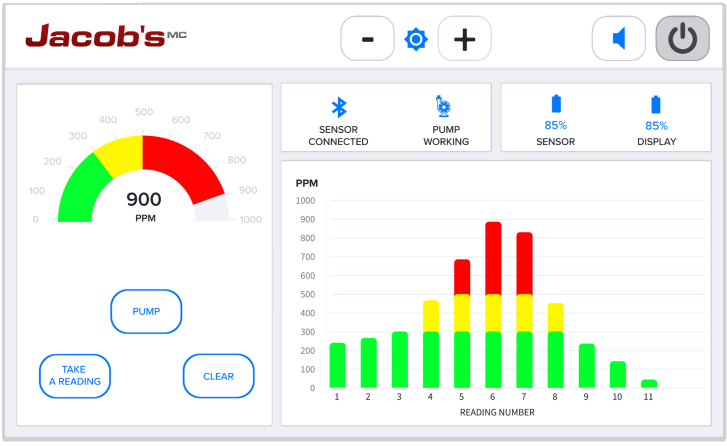


Figure 5. **SNIFFER 430** device software.

6. Troubleshooting

	Problem	Solution
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)

Jacob's MC

Kontroltest International D.O.O.
Member of TROKUT TEST GROUP
Samoborska Cesta 114
HR-10000 Zagreb | Croatia
Tel: +385 1 7789848
Fax: +385 1 7789849
E-mail: sales@jacobs-mc.com
WWW.JACOBS-MC.COM

R 1 | 2023