

H2scan

ADVANCED HYDROGEN SENSING

The screenshot displays the ScanH2 software interface. At the top left, the logo 'ScanH2' is shown with 'ADVANCED HYDROGEN SENSING' below it. To the right, a green 'Connected' status is indicated, along with 'Modbus[1] via serial (COM9)' and three dots. A version number 'v1.0.3.0' is in the top right corner. Below this is a navigation bar with four tabs: 'Connect', 'Realtime Data', 'Configuration', and 'Info'. The 'Realtime Data' tab is active. The main area shows several data fields: 'Hydrogen' with a value of '0' and unit 'ppm', 'Liquid Temperature' with '33.99' and unit '°C', 'Moisture' with '27.9' and unit '%RH', another 'Moisture' field with '25' and unit 'PPM', and 'Pressure' with '13.8' and unit 'PSI'. There are also two buttons: 'Enable Live Capture' and 'Disable Live Capture'. A 'Status' section contains a text box with the message 'Unit Ready - Autocalibration cycle, new data.'

Quick-Start Guide

GRIDSCAN Series

Configuration Utility

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1. UPDATES AND REVISIONS

Version 1.0.0 (R0) is compatible with firmware version 3:5:A.

Version 1.0.2.1 (R1) is compatible with firmware version 3:5:A, except for parity bit and DNP3.

Version 1.0.3.0 (R2) is compatible with firmware version 3:56:A, except for stop bit and parity bit selections.

2. SOFTWARE INSTALLATION

1. Request the ScanH2 Application Installation bundle from a technical support agent or by contacting TechnicalSupport@h2scan.com.
2. From the folder containing the received bundle, double-click **ScanH2_v1.0.3.exe** file.
3. Follow the series of prompts. The installer will notify when complete.
4. If desired, add the ScanH2 shortcut to the task bar or start menu.

3. PHYSICAL CONNECTION

3.1 RS-485 LINK

1. Connect the computer to the GRIDSCAN Monitor using an RS-485 converter.

Qualified converters are listed in the ScanH2 operating manual appendix.

2. Install the converter drivers prior to connecting a monitor.
3. Connect the monitor RS-485 signal wires to the converter as defined in the GRIDSCAN Monitor operating manual and the selected converter's instructions.

3.2 POWER

The monitor must be independently powered to establish a connection.

1. Apply power to the monitor per the GRIDSCAN Monitor operating manual.

USB RS-485 converters often do NOT require independent power input. The RS-485 converter may require independent power. Refer to the converter's instructions for requirements.

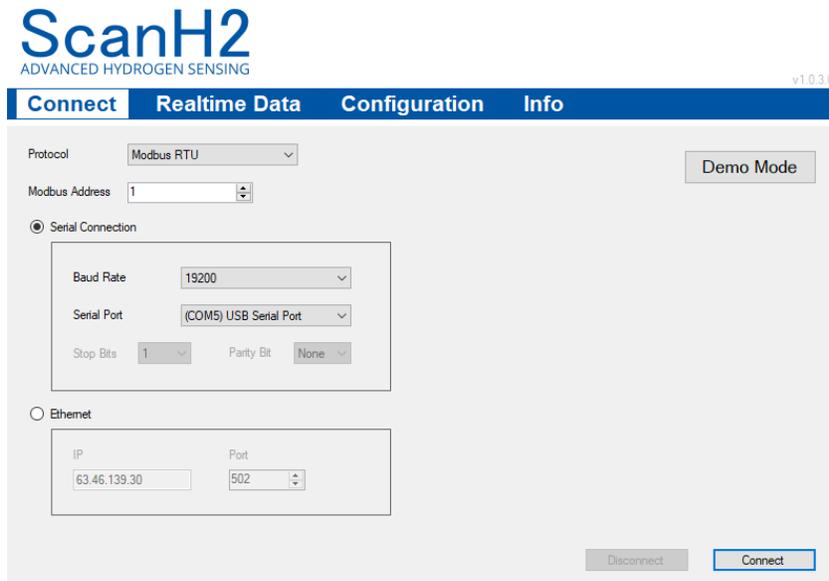
4. APPLICATION STARTUP

1. Navigate to the ScanH2 app via the file path below or the shortcut.

The default is C:\Program Files (x86)\H2Scan\ScanH2

2. Double-click the program **ScanH2.exe**.

The application opens to the **Connect** tab.



Connect Tab

5. HEADER

The ScanH2 App header shows the monitor's current connection status and information.



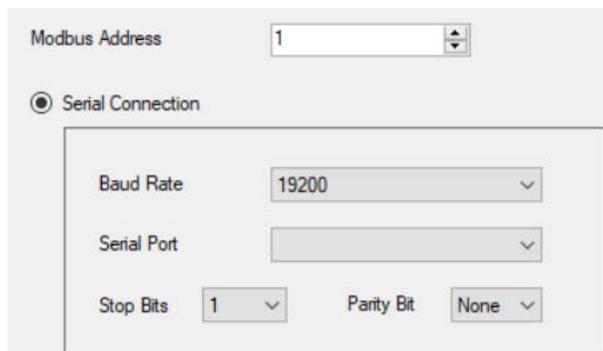
Header

Note: The header will appear with slight differences for Modbus, DNP3, and Ethernet connected devices.

6. DATA CONNECTION

6.1 MODBUS ADDRESS

1. Select Modbus from the **Protocol** dropdown.
2. Select the correct **Modbus Address** for the sensor unit. Default is 1.



Modbus Data Connection

6.2 DNP3 ADDRESS

1. Select DNP3 from the **Protocol** dropdown.

2. Set **Source Address** to 3.
3. Set **Destination Address** to 4.

The screenshot shows a configuration window for a DNP3 data connection. At the top, the 'Protocol' dropdown is set to 'DNP3'. Below it, 'Source Address' is set to '3' and 'Destination Address' is set to '4'. A radio button labeled 'Serial Connection' is selected. Inside a bordered box, the 'Baud Rate' is set to '19200', the 'Serial Port' is '(COM5) USB Serial Port', 'Stop Bits' is '1', and 'Parity Bit' is 'None'.

DNP3 Data Connection

6.3 SERIAL CONNECTION

1. Select **Serial Connection**.
2. Select the correct **Baud Rate** for the sensor unit. Default is 19200.
3. Select the **Serial Port** for the RS-485 device connected to the sensor unit in 3.1.

6.4 ETHERNET CONNECTION

Note: Ethernet connection can be used for Modbus protocol only.

1. Select **Ethernet** connection.
2. Enter the Network-RS-485 bridge IP address or resolvable hostname.
3. Enter the Network-RS-485 Bridge Port number.

The screenshot shows the 'Ethernet' configuration window. The 'Ethernet' radio button is selected. Below it, the 'IP' field contains '123.231.123.231' and the 'Port' dropdown is set to '502'.

Ethernet Connection

6.5 CONNECT

1. Click the **Connect** button to establish a data connection to the sensor unit.

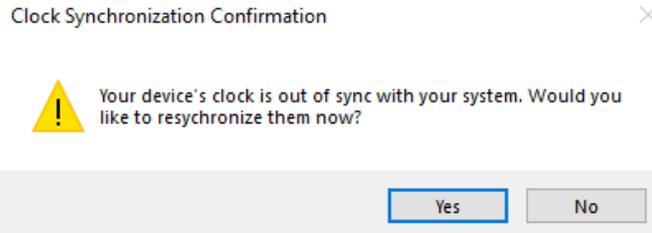
The **Realtime Data** tab will be displayed upon successful connection.

7. DATE AND TIME SETTING

7.1 RTC SYNCHRONIZATION ON CONNECT

At the time of sensor unit connection, the ScanH2 app will display a prompt if sensor RTC time is more than 24 hours out of sync from the local computer's date and time.

1. Select **Yes** to synchronize the sensor with the computer's date and time.

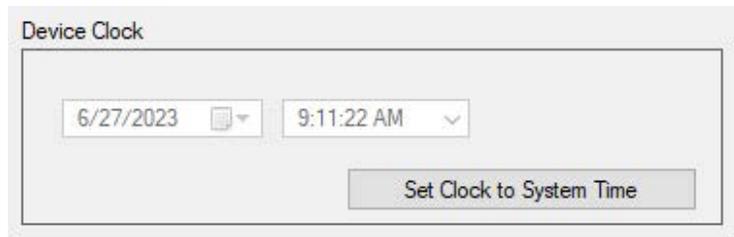


Clock Synchronization Message

7.2 SYNCHRONIZE MONITOR DATE AND TIME

Synchronize the date and time with the computer.

1. Select the **Configuration** tab.
2. Observe the sensor unit's current date and time setting.
3. Click the **Set Clock to System Time** button.



Device Clock

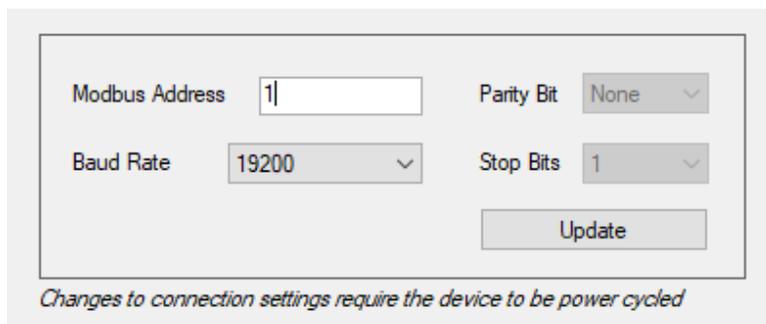
8. MONITOR COMMUNICATIONS CONFIGURATION

8.1 MODBUS

1. Select the **Configuration** tab.
2. Input **Modbus Address**. Default is 1.
3. Select **Baud Rate** from the dropdown. Default is 19200.

Note: Parity Bit defaults to None and Stop Bits default to 1 when sensor firmware is 3:5:A and cannot be modified.

4. Commit the configuration to the monitor by clicking the **Update** button.
5. If the monitor doesn't connect automatically, power cycle monitor and connect with the updated communication settings.



Modbus Communications Configuration

8.2 DNP3

1. Select the **Configuration** tab.

2. Input **DNP Source** and **Destination Addresses**.
3. Select **Baud Rate** from the dropdown. Default is 19200.

Note: Parity Bit defaults to None and Stop Bits default to 1 when sensor firmware is 3:5:A and cannot be modified.

4. Commit the configuration to the sensor unit by clicking the **Update** button.
5. If the monitor doesn't connect automatically, power cycle monitor and connect with the updated communication settings.

9. CONFIGURATION

1. Select the **Configuration** tab.

Note: Liquid Type, Synthetic Ester Configuration, Operating Mode, Owner, Substation, and Transformer fields are all configured together.

2. Select **Liquid Type** from the dropdown menu. Default is mineral.
3. Select **Operating Mode** from the dropdown menu. Default is field.

Note: Field is the intended operating mode for sensor units. Do not use other modes when monitoring environments or equipment.

4. Enter **Owner ID**.
5. Enter **Substation ID**.
6. Enter **Transformer ID**.
7. Commit the configuration by clicking the **Update** button.

The screenshot shows a configuration form with the following fields and values:

Liquid Type Selection	Mineral
Operating Mode	Field
Owner	H2Scan
Substation	QA Lab
Transformer	Unit 1

Configuration

9.1 CUSTOM LIQUID TYPE

Synthetic Ester Configuration is enabled when Liquid Type Selection is set to Synthetic Ester. This allows custom Name, Ostwald Slope, and Ostwald Offset values to be entered.

1. Select Synthetic Ester from **Liquid Type Selection**.
2. Under **Synthetic Ester Configuration**, enter **Name**, **Ostwald Slope** value, and **Ostwald Offset** value.
3. Commit the configuration by clicking the **Update** button.

Custom Liquid Type

NOTE: For assistance with Custom Liquid Type selection, contact [H2scan Technical Support](#).

The screenshot shows a configuration window with the following fields:

- Liquid Type Selection: Synthetic Ester (dropdown)
- Operating Mode: Field (dropdown)
- Owner: H2Scan (text input)
- Substation: QA Lab (text input)
- Transformer: Unit 1 (text input)
- Synthetic Ester Configuration section:
 - Name: Synthetic Ester (text input)
 - Ostwald Slope: 0.000093 (text input) with unit 'm'
 - Ostwald Offset: 0.039739 (text input) with unit 'b'

9.2 READ/WRITE CONFIGURATION FILE

Note: Configuration files are app version specific and cannot be used if downloaded from a previous app version.

The Configuration tab provides the option to save the monitor’s configuration file. Use this file to restore values to the monitor with the Write to Device feature. The file can also be sent to [H2Scan Technical Support](#) when necessary.

Values saved to the configuration file include Owner, Substation, Transformer, Operating Mode, Liquid Type Selection, Synthetic Ester Configuration Name, Ostwald Slope, Ostwald Offset, Modbus Address, Baud Rate, Parity Bit, and Stop Bits.

Verify settings are correctly applied after saving.



Configuration File

9.2.1 Read from Device

1. From the **Configuration** tab, click the **Read from Device** button.
2. Follow the prompts to save the sensor configuration file on the local PC.
3. Click **Save**.

9.2.2 Write to Device

1. From the Configuration tab, click the **Write to Device** button.
2. Navigate to the saved configuration file.
3. Click **Open**.
4. Power cycle sensor unit if the restored sensor configuration updates communication settings.
5. Reconnect to sensor unit using updated settings.

10. REALTIME DATA

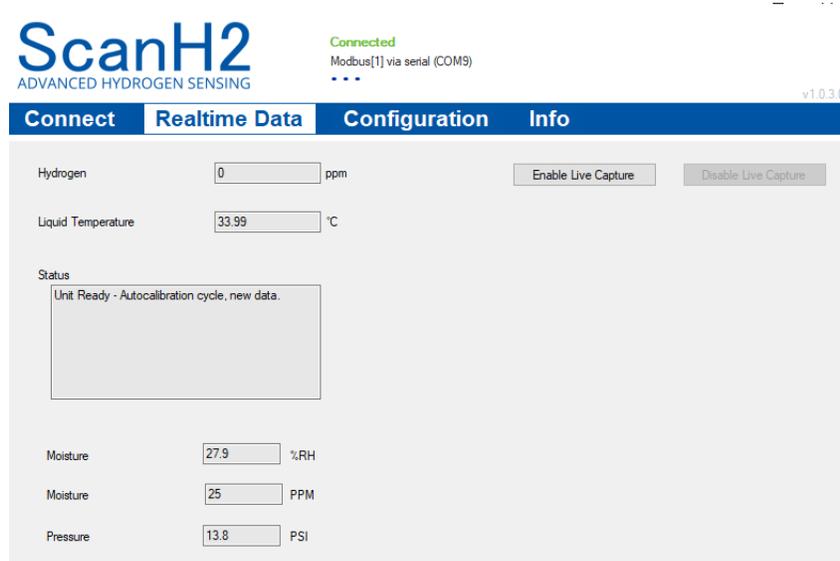
The Realtime Data tab shows the following:

- Hydrogen in ppm
- Moisture in ppm
- Sensor unit status

For the GRIDSCAN6000 only, data includes;

- Moisture %RH
- Moisture in ppm
- Pressure in the configured units of measurement, including atm, psi, BAR, kPa, and in H₂O.

For detailed information consult the monitor operating manual.



Realtime Data

10.1 LIVE CAPTURE

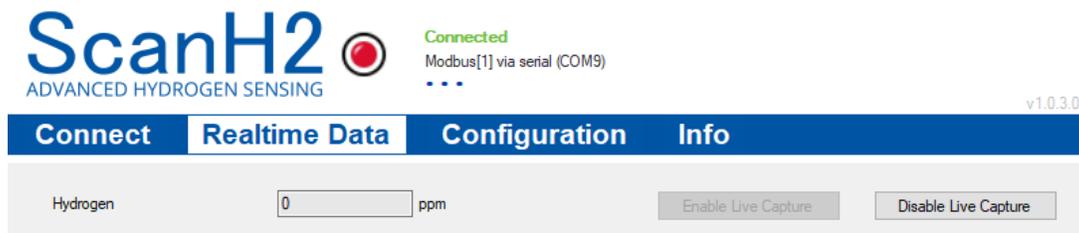
Enable the Live Capture feature to save specific data and configuration values to a CSV file.

1. Click the **Enable Live Capture** button.
2. Follow on-screen prompts to name file and select file directory.
3. Click **Save**.

When Live Capture is active, a RED indicator appears in the app header and the Enable Live Capture button is grayed out.

4. Click the **Disable Live Capture** button to end.
5. Review the Live Capture CSV data file using any spreadsheet application.

Note: All Realtime Data fields are read-only and cannot be modified. Do not change monitor configuration while monitoring realtime data.



Live Capture

11. MONITOR INFORMATION

1. View the monitor information from the read-only Info tab.

- Download the information by clicking the **Save to CSV** button.

ScanH2 v1.0.3.0
ADVANCED HYDROGEN SENSING

Connected
Modbus[1] via serial (COM9)

Connect | **Realtime Data** | **Configuration** | **Info**

Model Number	106000-1-OIL-PROTO	Manufacturing Date	27/11/2023
Product Serial Number	GEN5P-2.2301000001	Factory Calibration Date	27/11/2023
Sensor Board Serial Number	gen5p_sensor_board_1	Dissolved Gas Calibration Date	14/3/2024
Internal Sensor Temperature	69.42 °C	Firmware Revision	3:56:A
Status	Unit Ready - Autocalibration cycle, new data.		
Error Status	No errors reported.		

Save To CSV

Sensor Unit Information: Modbus

ScanH2 v1.0.3.0
ADVANCED HYDROGEN SENSING

Connected
DNP3[3 -> 4] via serial (COM9)

Connect | **Realtime Data** | **Configuration** | **Info**

Model Number	106000-1-OIL-PROTO	Manufacturing Date	11/27/2023
Product Serial Number	GEN5P-2.2301000001	Factory Calibration Date	11/27/2023
Internal Sensor Temperature	67.54 °C	Dissolved Gas Calibration Date	3/14/2024
		Firmware Revision	3:56:A, PORRST
Status	Unit Ready - Hydrogen measurement cycle, new data.		
Error Status	No errors reported.		

Save To CSV

Sensor Unit Information: DNP3

12. DEMO MODE

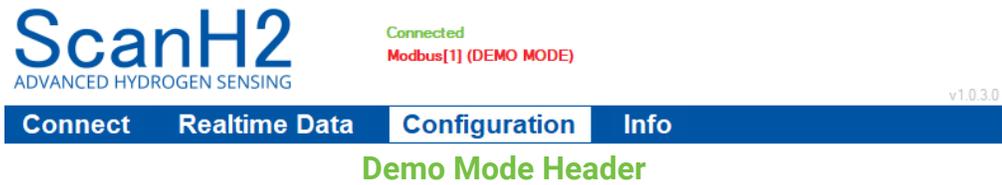
Use the Demo Mode feature to simulate the functionalities of the application without the physical device. All realtime data, configuration, and info are simulated data.

12.1 ENTERING AND EXITING DEMO MODE

- Select the **Connect** tab.
- Click the **Demo Mode** button.
- To exit Demo Mode, click the **Disconnect** button from the **Connect** tab.

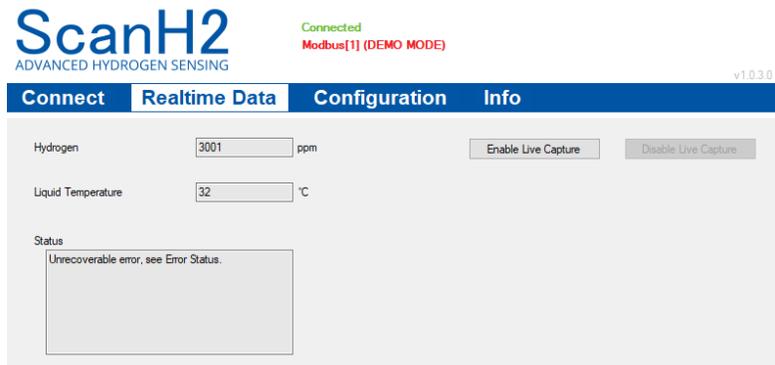
Note: Demo Mode will not affect an actual device.

User information in the header indicates Demo Device when Demo Mode is active.



12.2 REALTIME DATA TAB

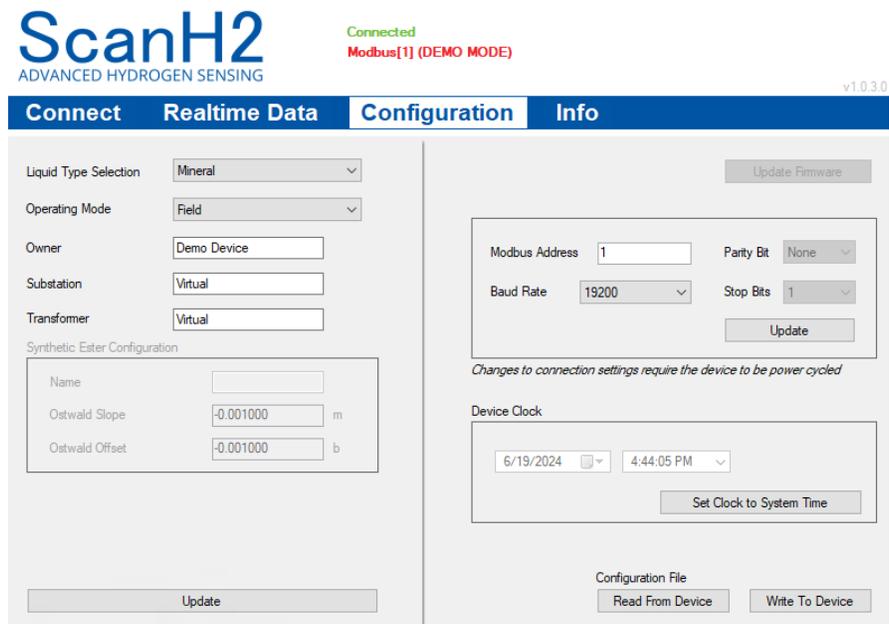
Hydrogen ppm, liquid temperature, status, and live capture data are simulated data.



Demo Mode Realtime Data

12.3 CONFIGURATION TAB

The configuration tab is pre-filled with simulated settings. Customer configurations can be modified and saved in the simulated environment. Changes made in this section when Demo Mode is active will not affect any physical H2Scan sensor device.



Demo Mode Configuration

12.4 INFO TAB

Data fields will read "0/0/0" for demo mode.

The screenshot shows the 'Info' tab of the ScanH2 configuration utility. At the top, it displays 'ScanH2' and 'ADVANCED HYDROGEN SENSING' with a version number 'v1.0.3.0'. The connection status is 'Connected Modbus[1] (DEMO MODE)'. The main content area is divided into two columns of fields:

- Left Column:**
 - Model Number: Virtual
 - Product Serial Number: [Empty]
 - Sensor Board Serial Number: [Empty]
 - Internal Sensor Temperature: 0 °C
 - Status: Unrecoverable error, see Error Status.
- Right Column:**
 - Manufacturing Date: 0/0/0
 - Factory Calibration Date: 0/0/0
 - Dissolved Gas Calibration Date: 0/0/0
 - Firmware Revision: Virtual v0.1
 - Error Status: Sensor - Heater Fault, Sensor - Temperature Sensor Fault, Sensor - Hydrogen Sensor Fault, Battery backup error.

A 'Save To CSV' button is located at the bottom right of the form.

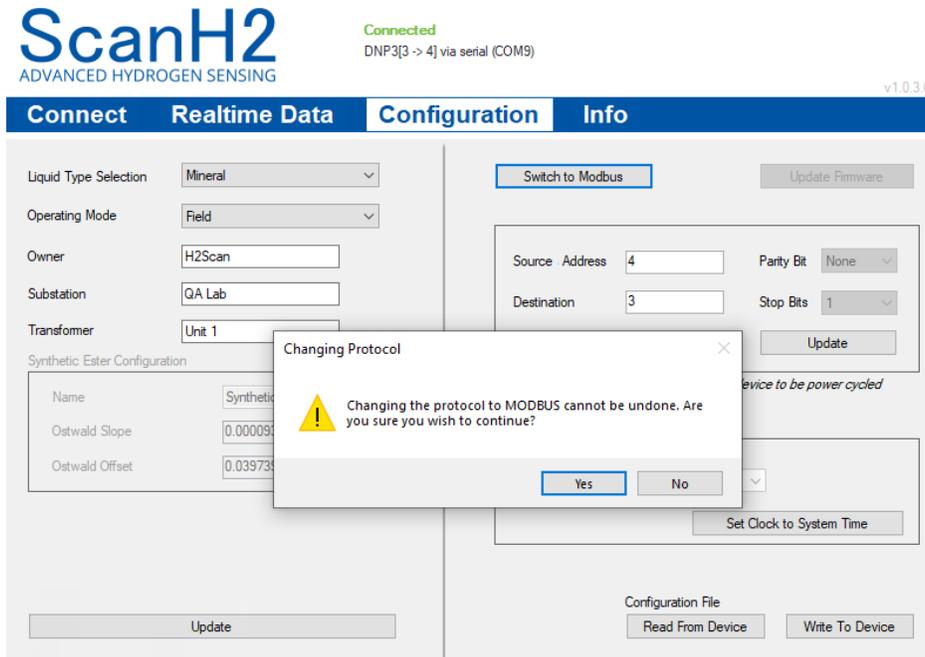
Demo Mode Info

13. MODBUS MODE

Note: Switching protocol from DNP3 to Modbus is irreversible. Contact TechnicalSupport@h2scan.com for assistance.

To switch from DNP3 to Modbus protocol:

1. Select the **Configuration** tab.
2. Click the **Switch to Modbus** button.
3. At the Changing Protocol prompt, click **Yes**.



Switch to Modbus

14. TROUBLESHOOTING

App logging to assist in troubleshooting ScanH2 App and GRIDSCAN monitors is located on the end user's PC in the file path **C:\Users\[username]\AppData\Local\ScanH2\logs**.