



Monitor. Manage. Momentum.



OPERATION MANUAL

HY-SIGHT™

8250 Series

27215 Turnberry Lane, Suite A
Valencia, California 91355, U.S.A.

Tel: (661) 775-9575 / Fax: (661) 775-9515

E-mail: hello@h2scan.com

Website: www.h2scan.com

IMPORTANT NOTICES

Look over and understand this operation manual before installing or using the unit. If this equipment is used in a manner not specified by H2scan, the warranty may be void. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

WARNING

If the product seems defective, DO NOT attempt to repair it. Immediately send the product back to H2scan for repairs.

LIMITATION OF LIABILITY - seller shall under no circumstances be liable for any incidental, consequential, special, punitive, or other damages, including, but not limited to, loss of business or profit, promotional or manufacturing expenses, injury to reputation, or loss of customer, based on any alleged negligence, breach of warranty, strict liability, breach of contract, or any other legal theory arising out of the use, misuse, purchase, sale or possession of its goods or its performance of this contract to the extent that such liability extends seller's obligations beyond the price paid by buyer to seller for the item on which such claim is based. Seller advises buyer to perform acceptable tests on all hardware prior to deployment and to perform maintenance as described in the seller's instruction guide. Under no circumstances shall the equipment provided hereunder be used in a manner where it is the sole protective system for facilities, equipment, and personnel safety; the equipment is intended for use in conjunction with other appropriate protective systems.

LIMITED WARRANTY

H2scan Limited Warranty: Each HY-SIGHT™ 8250 Series ("Product") will conform, as to all substantial operational features, to the Product specifications set forth in this Manual and will be free of defects which substantially affect such Product's performance for 12 months from the ship date for such Product.

Must Provide Notice of Defect: If you have a Product that you believe is defective, you must notify H2scan in writing, within the warranty period of your claim regarding any such defect.

Return Product to H2scan for Repair, Replacement or Credit: The customer is responsible for shipping and handling costs. If the Product is found defective by H2scan, H2scan's sole obligation under this warranty is to either (i) repair the Product, (ii) replace the Product, or (iii) issue a credit for the purchase price for such Product, the remedy to be determined by H2scan on a case-by-case basis. A valid RMA number must be assigned by H2scan and clearly marked on the package when the unit is returned.

Voided Warranty: H2scan's one-year Limited Warranty on the HY-SIGHT is void for any of the following:

- Unauthorized repair work performed at the customer's location or conducted by anyone other than H2scan's factory trained technicians.
- Equipment or parts that have been tampered with, misused, neglected, mishandled, improperly adjusted, or modified in any way without the written consent of H2scan.
- Equipment or parts that have been damaged due to shipping, misuse, accidents, mishandling, neglect, or problems with electrical power sources.
- Repair work performed during the warranty period does not prolong the warranty period past the original period.

- System operation in incorrect or inappropriate environments.
- Usage that is not in accordance with system guidelines or an operator's failure to follow manual instructions.

Limitation of Warranty: THE ABOVE IS A LIMITED WARRANTY AS IT IS THE ONLY WARRANTY MADE BY H2SCAN. H2SCAN MAKES NO OTHER WARRANTY EXPRESS OR IMPLIED AND EXPRESSLY EXCLUDES ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. YOUR SOLE REMEDY HEREUNDER IS REPAIR OR REPLACEMENT OF THE PRODUCT OR A CREDIT FOR THE PURCHASE PRICE FOR SUCH PRODUCT, THE PARTICULAR REMEDY TO BE DETERMINED BY H2SCAN ON A CASE-BY-CASE BASIS. H2SCAN SHALL HAVE NO LIABILITY WITH RESPECT TO ITS OBLIGATIONS UNDER THIS AGREEMENT FOR CONSEQUENTIAL, EXEMPLARY, OR INCIDENTAL DAMAGES, EVEN IF IT HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE STATED EXPRESS WARRANTY IS IN LIEU OF ALL LIABILITIES OR OBLIGATIONS OF H2SCAN FOR DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE DELIVERY, USE OR PERFORMANCE OF THE PRODUCTS.

Symbol	Meaning
	Caution, possibility of electric shock
	Caution

1. GETTING STARTED.....	6
1.1 INTRODUCTION	6
1.2 MEET YOUR HY-SIGHT	6
1.3 WHAT'S IN THE BOX.....	6
1.4 INSTALLATION OPTIONS	7
1.5 INSTALLATION GUIDE	7
1.5.1 RECOMMENDED TOOLS & WIRING FOR INSTALLATION.....	7
1.5.2 PREPARATION	7
1.5.3 WIRING.....	7
1.5.4 MOUNTING	9
2. OPERATION.....	11
2.1 SET UP & CONTROLS.....	11
2.1.1 DATE & TIME	11
2.1.2 DEVICE INFO.....	11
2.2 TERMINATING RESISTOR	12
2.2.1 AUTOMATIC CONFIGURATION	13
2.3 HOME SCREEN	13
2.4 ERROR STATUS.....	14
2.5 MENU & SETTINGS.....	14
2.5.1 MENU	14
2.5.1.1 Settings	15
2.5.1.2 Device Info	15
2.5.1.3 Logs.....	16
2.5.1.4 User Manual	16
2.5.1.5 Back	16
2.5.2 SETTINGS	16
2.5.2.1 About.....	16
2.5.2.2 Configure.....	16
2.5.2.3 Date & Time.....	16
2.5.2.4 Units	16
2.5.2.5 Back	16
2.6 SELECT BUTTON	17
2.7 AUDIBLE SPEAKER	17
2.8 COMMUNICATION TEST MODE	17
2.9 DATA, EVENT LOGS AND FIRMWARE UPDATES.....	18
2.9.1 DATA LOG.....	18
2.9.2 EVENT LOG.....	18
2.9.3 FIRMWARE UPDATES.....	19

2.10 HEALTH & MAINTENANCE.....	20
2.10.1 HY-GUARD BUMP TEST REFERENCE.....	20
2.10.2 TROUBLESHOOTING.....	20
APPENDIX A: SPECIFICATIONS.....	21
APPENDIX B: CERTIFICATIONS & STANDARDS.....	21

1. GETTING STARTED

1.1 INTRODUCTION

HY-SIGHT™ is a remote display and control accessory for compatible H2scan HY-GUARD Area Monitors. It provides an interface for viewing hydrogen concentration, detector status, alarm and fault conditions, communication status, and stored event and data records. It also provides authorized user and service functions for connected HY-GUARD monitors.

NOTE: HY-SIGHT is an accessory that does not independently detect hydrogen and must be connected to the HY-GUARD Area Monitor

1.2 MEET YOUR HY-SIGHT

HY-SIGHT is designed as an easy-to-view monitor and controller. The interface is intended to be easy to read during normal operation and actionable during alarm, fault, and service conditions. The home screen provides a large, clear hydrogen reading and system status for connected HY-GUARDs. The display includes H₂ concentration, unit status, alarm status, fault status, communication status, time/date, and connected device identification.

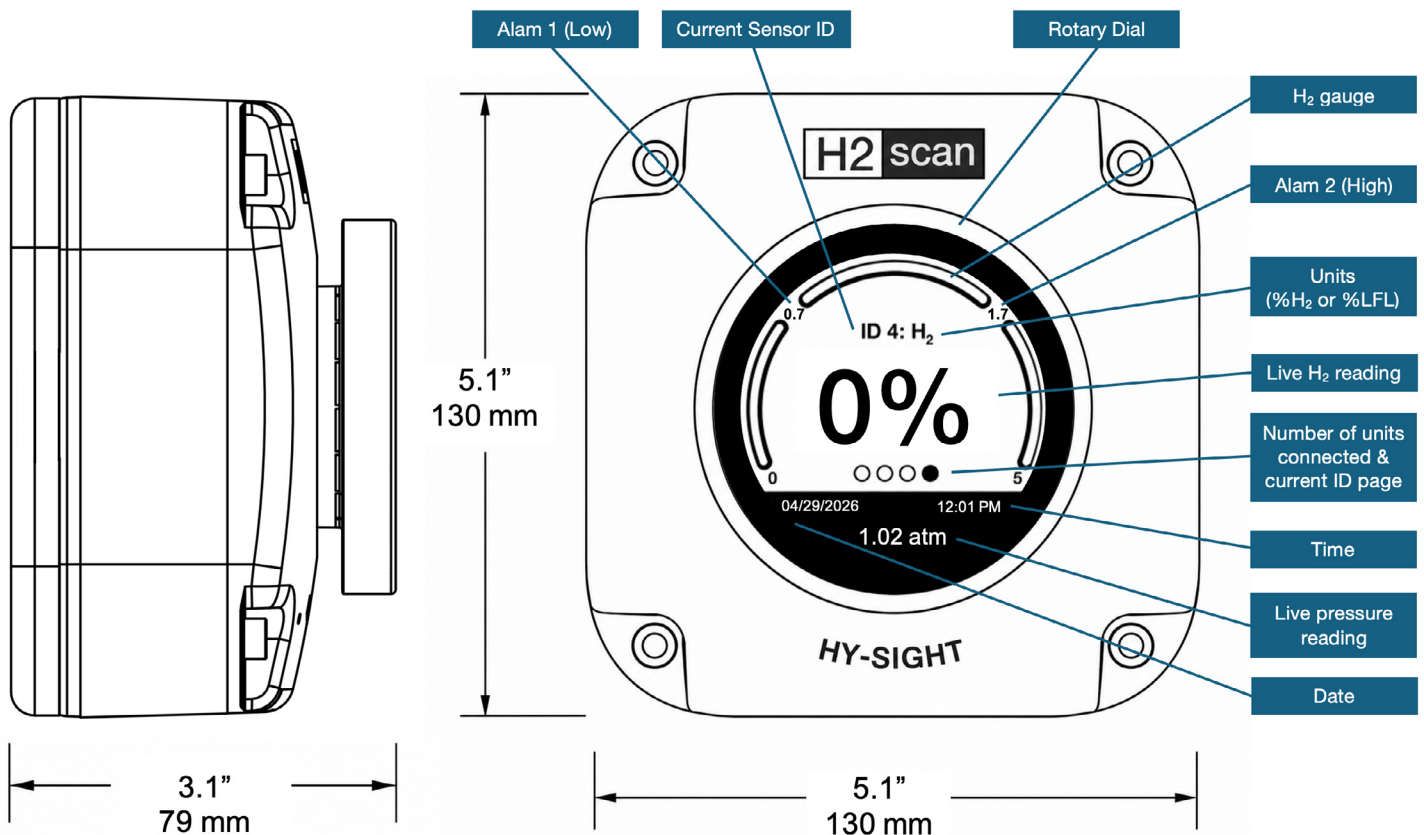


Figure 1: HY-SIGHT Diagram

1.3 WHAT'S IN THE BOX:

- HY-SIGHT
- Wall Mount
- Mounting Hardware (4x 8-32 x 5/8" Phillips head screws for Junction Box Mounting)*
- Quick-Start Guide

*For Wall Mounting, 4x No. 8 x 1-1/2" Phillips head screws and 4x No. 8 drywall/plaster anchors are recommended

1.4 INSTALLATION OPTIONS

HY-SIGHT is intended to support multiple installation options.

- Junction Box: Mounts to a standard 2100 junction box (4-11/16")
- Wall Mount: Mounts to a wall or surface

CAUTION

HY-SIGHT is intended for indoor use only and should not be installed where the display could be exposed to excessive heat, condensation, vibration, chemical exposure, or direct impact.

1.5 INSTALLATION GUIDE

1.5.1 RECOMMENDED TOOLS & WIRING FOR INSTALLATION

- Phillips #2 screwdriver
- 1/8" flathead screwdriver
- 2mm hex bit
- Wire gauge:
 - AC: 14–20 AWG
 - DC: 14–20 AWG
 - RS-485: 14–20 AWG

1.5.2 PREPARATION

1. Inspect the unit for shipping damage. Do not install if cracked, damaged, wet, or visibly compromised.
2. Refer to the back side of the Quick-Start Guide for a mounting hole template.
3. The HY-SIGHT can be powered with AC (100–240 $\pm$ 10% VAC, 50/60 Hz) or DC (12–48 VDC).

1.5.3 WIRING

NOTE: Each HY-SIGHT supports up to four HY-GUARD Area Monitors.

⚠ WARNING

Before wiring, ensure all power sources are disconnected. Verify no live wires are present to prevent electrical shock, equipment damage, or serious injury.

1. To separate the Wall Mount from the HY-SIGHT, rotate the HY-SIGHT 45 degrees counter-clockwise (see [Figure 2](#)).

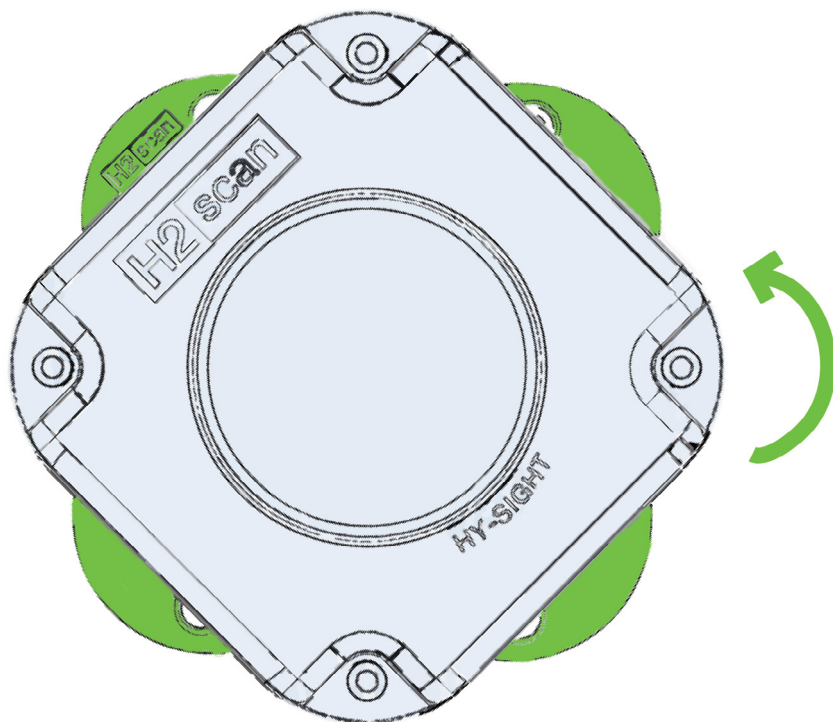


Figure 2: Separate Wall Mount

2. Route power and communication wiring through the center of the HY-SIGHT (see [Figure 3](#)).

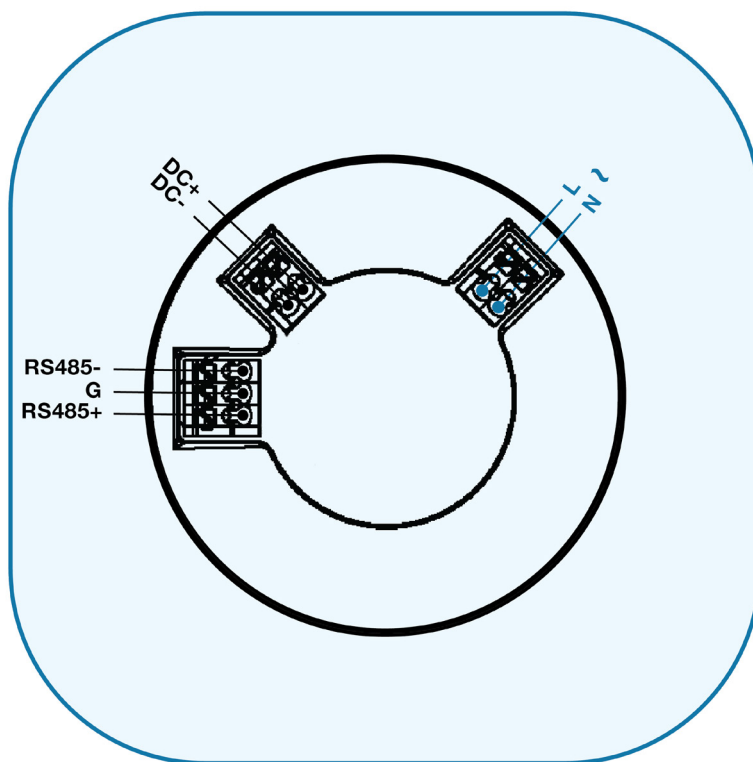


Figure 3: HY-SIGHT Wiring

NOTE: Keep AC wires separate from DC.

3. Connect wires to the appropriate connector using a flathead screwdriver (see [Figure 4](#)).

NOTE: Ensure all wires are securely connected.

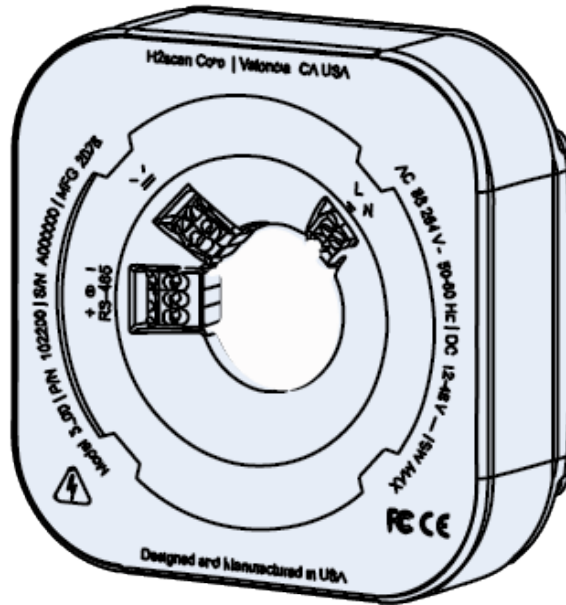


Figure 4: Connect Wires

NOTE: Ensure the device wiring matches the diagram provided in [Figure 3](#). If you are uncertain if the device is functioning properly, use the Communication Test Mode ([2.8](#)) to validate the system after the HY-SIGHT is powered on.

1.5.4 MOUNTING

1. Mount the wall mount onto the mounting surface using Phillips #2 screwdriver (see [Figure 5](#)).
 - Secure the adapter plate with four 8-32 Phillips head screws and hand tighten.

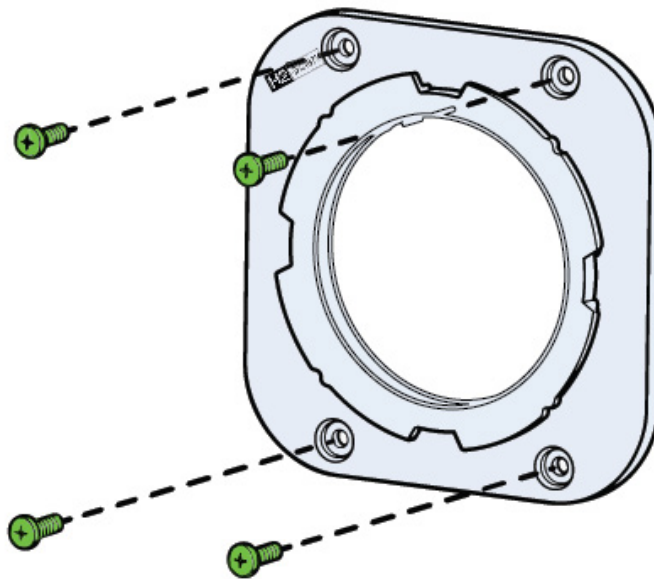


Figure 5: Secure Wall Mount to Surface

2. Secure the HY-SIGHT module to the wall mount by aligning the H2scan logo on the HY-SIGHT to the logo on the wall mount and twist the HY-SIGHT 45 degrees clockwise (see [Figure 6](#)).

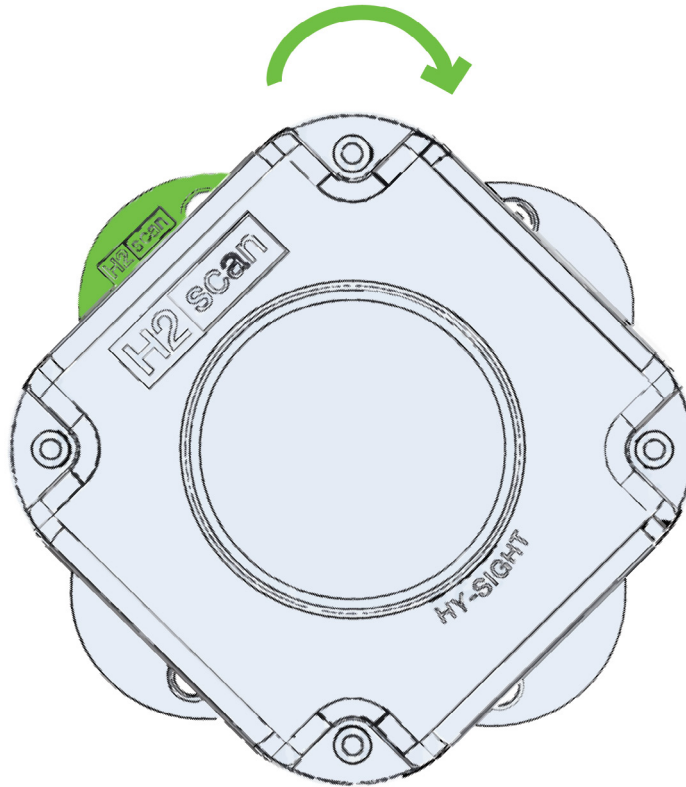


Figure 6: Secure HY-SIGHT Module to Wall Mount

3. HY-SIGHT is now installed and will require the user to set up the HY-SIGHT.

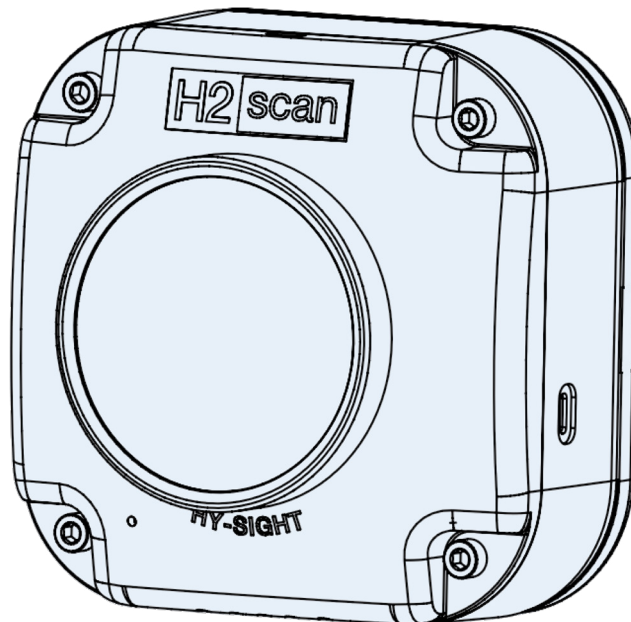


Figure 7: HY-SIGHT Installed

2. OPERATION

2.1 SET-UP & CONTROLS

Upon initial power-up, the HY-SIGHT will trigger a boot-up sound. The user will be required to set up the HY-SIGHT before entering the Home screen.

To select, the user can press down on the screen, and to scroll, the user can move left or right using the rotary dial.

The set-up will consist of the following: Date & Time and Device Info. See [Figure 8](#) for reference.

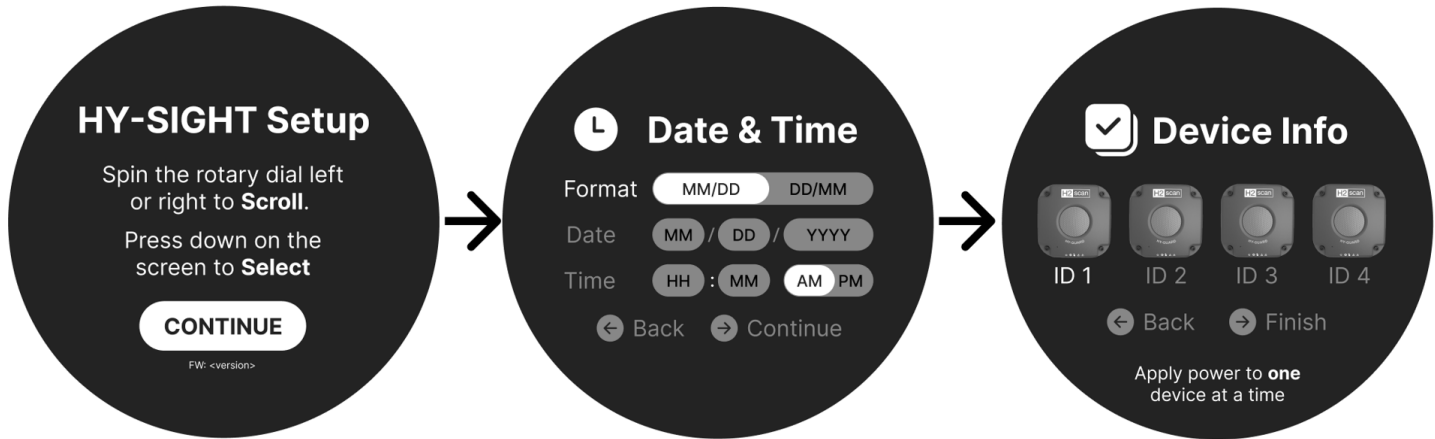


Figure 8: Setup

2.1.1 DATE & TIME

The user must input the date and time. The user has the option of formatting the date between MM/DD or DD/MM view. The default is MM/DD.

2.1.2 DEVICE INFO

The user must manually configure the devices. Follow the steps below:

1. Devices must be configured to default communication settings before connecting to HY-SIGHT.

MODBUS ID	DATA BITS
1	8
BAUD RATE	STOP BIT
19200	1
	PARITY BIT
	None

2. Ensure hydrogen monitors are all installed in the preferred location, daisy-chained via RS-485 and wired into the HY-SIGHT. Do not connect AC or DC power to the HY-GUARD units at this stage. The device icons on the HY-SIGHT Device Info page will be grayed out, indicating that no devices are connected.
3. Provide power to the first device. Select 'ID 1' in the HY-SIGHT and select 'Connect'. This will initiate the connection with the first device.
4. Once connected, the user will see the serial number, 'S/N' and the model number, 'Model', of the first device. The user can select 'Back', which will take them back to the Device Info page.
5. The user will now see 'ID 1' in the Sensor Not Ready or Normal Operation mode on the Device Info page. The middle circle of the HY-GUARD icon reports on the current status of the unit. Refer to [Table 1](#).

Table 1: HY-SIGHT ‘Device Info’ Status Modes

Icon	Status
	Normal Operation
 flashing	Sensor Not Ready
	Alarm 1 (Low Alarm)
	Alarm 2 (High Alarm)
	Fault Mode
	Device Not Connected

- The user must repeat Steps 2, 3, and 4 until all installed devices are populated on the Device Info page. The user can then select ‘Finish’ to complete their set-up.*

*If the user accidentally selected ‘Finish’, and wants to connect more devices, press down on the screen to go to the Menu page and select ‘Device Info’. See [2.1.2](#) and follow the steps 2, 3, and 4.

NOTE: The final HY-GUARD in the chain will have the terminating resistor enabled automatically, refer to section [2.2](#).

2.2 TERMINATING RESISTOR

The terminating resistor must be enabled on the last HY-GUARD in the RS-485 daisy chain to properly terminate the communication bus and support reliable communication between the HY-SIGHT and connected HY-GUARDS. The default setting for the HY-GUARD is that the terminating resistor is enabled.

If you are setting up more than one HY-GUARD in your system, you will need to disable the terminating resistor for all the units except the last one in the chain.

2.2.1 AUTOMATIC CONFIGURATION

The terminating resistor can be configured automatically through the HY-SIGHT when the user powers and connects one HY-GUARD at a time. To use automatic configuration, power on one HY-GUARD, connect it using the HY-SIGHT, and then repeat the process one unit at a time until all HY-GUARDS are connected. This allows the HY-SIGHT to manage the terminating resistor logic so the final HY-GUARD in the RS-485 daisy chain is properly terminated. If the automatic configuration fails, see [2.10.2](#).

NOTE: If the last HY-GUARD in the chain is ejected, the terminating resistor will be disabled for that unit and will be enabled for the previous unit in the chain.

2.3 HOME SCREEN

The Home screen provides a clear hydrogen reading and system status for the devices. Refer to [Table 2](#).

Table 2: HY-SIGHT Home Status Modes

Icon	Audible Speaker	Status
		Sensor Not Ready: The device will then enter a warm-up period of up to six minutes. When HY-GUARD finishes initializing, it will enter “Normal Operation” mode. This means the monitoring device is fully functional and actively monitoring hydrogen.
		Normal Operation: H ₂ range between 0 and 0.7 % H ₂ .
		Alarm 1 (Low Alarm): H ₂ range between 0.7 % H ₂ to Alarm 2 (High Alarm)* threshold. *Note: Alarm 2 (High Alarm) default set at 1.7% H ₂ or 43% LFL.
	 (Press down on the screen to silence speaker)* *When operating with a HY-GUARD product, this will silence the buzzer on the current HY-GUARD as well.	Alarm 2 (High Alarm): Default set at 1.7% H ₂ or 43% LFL. H ₂ range between Alarm 2 (High Alarm)* threshold and 5 % H ₂ , during which time the HY-GUARD and HY-SIGHT will be in an alarm state and the audible speaker will be on. *The configurable H ₂ range for Alarm 2 (High Alarm) is 1–2% H ₂ . NOTE: To silence the speaker on the HY-SIGHT, the user must silence each HY-GUARD ID individually by pressing down on the screen.

Icon	Audible Speaker	Status
	 (Press down on the screen to silence speaker)* *When operating with a HY-GUARD product, this will silence the buzzer on the current HY-GUARD as well.	Fault Mode: The HY-GUARD and HY-SIGHT will be in an fault state and the audible speaker will be on. The specific fault will be identified on the HY-SIGHT. See section 2.4 for more information. NOTE: To silence the speaker on the HY-SIGHT, the user must silence each HY-GUARD ID individually by pressing down on the screen.
		No Device Connected. To add monitoring device(s), press down on the screen to enter the 'Menu' page, scroll to 'Device Info'. See 2.1.2 and follow the steps 2, 3, and 4.

NOTE: If devices are in both a high-alarm and a fault state, the high alarm will take precedence. This will be indicated via the screen and speaker.

2.4 ERROR STATUS

The following Error Statuses in [Figure 9](#) are examples of fault codes and can be referenced in the [HY-GUARD User Manual](#) in 3.2.2 Error Status.



Figure 9: Error Statuses

2.5 MENU & SETTINGS

The Menu is accessed by pressing down on the screen. Navigate through the Menu and Settings by rotating the dial left or right. Reference Figures [10](#) and [11](#) for more information.

NOTE: When in the Menu and Settings page, the Dock at the bottom of the page shows the highest hydrogen reading from your connected devices. See Figures [10](#), [11](#) and [12](#).

2.5.1 MENU

The Menu contains the Settings, Device Info, Logs, and User Manual pages.

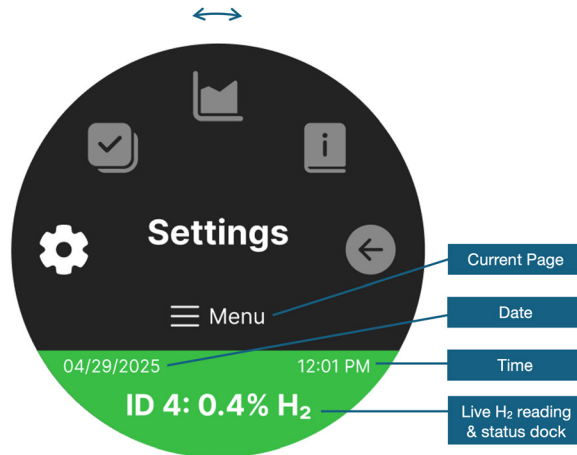


Figure 10: Menu Page

2.5.1.1 Settings

When 'Settings' is selected, this button takes the user to another page that contains the About, Configure, Date & Time, and Units pages.

2.5.1.2 Device Info

When 'Device Info' is selected, this button takes the user to another page that shows the Status of all connected HY-GUARD IDs. When an ID is selected, this button takes the user to another page that shows that specific ID's serial number, 'S/N', and the model number, 'Model'. See [Figure 11](#) for reference.

This page contains various actions, including:

- 'Device Reset': Allows the user to reset the specific HY-GUARD ID they selected.
- 'Communication Test Mode': Allows the user to initiate Communication Test Mode on the specific HY-GUARD ID they selected through the HY-SIGHT. Communication Test Mode cycles through the low, high, and fault alarms for five seconds each to ensure the system is wired as intended. See section [2.8](#) for more information.
- 'Eject': Allows the user to disconnect that specific HY-GUARD ID they selected.
- 'Back': Returns the user to the Device Info page.

NOTE: If the HY-GUARD icons are grayed out, this means there are fewer than four HY-GUARDS connected. To connect another HY-GUARD, select the grayed out HY-GUARD icon, then follow steps 2, 3, and 4 in section [2.1.2](#).

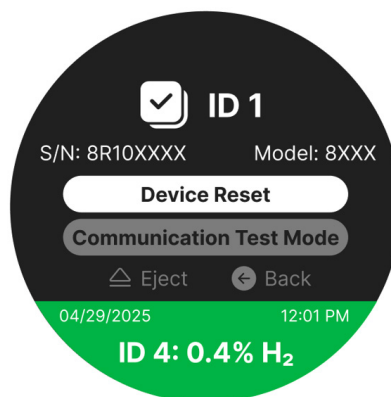


Figure 11: Device Info ID 1

2.5.1.3 Logs

When 'Logs' is selected, this button takes the user to another page that contains information on downloading Event and Data Logs. For more information reference section [2.9](#).

2.5.1.4 User Manual

When selected, this button takes the user to a page with the QR code to access the User Manual digitally.

2.5.1.5 Back

When selected, this button returns the user to the Home page.

2.5.2 SETTINGS

The Settings consist of About, Configure, Date & Time, and Units pages.

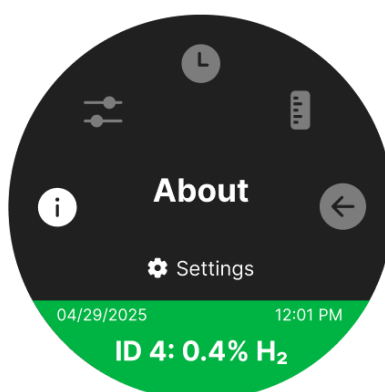


Figure 12: Settings Page

2.5.2.1 About

When 'About' is selected, this button takes the user to a page that contains the current HY-SIGHT and connected device Firmware Versions.

2.5.2.2 Configure

When 'Configure' is selected, this button takes the user to a page where the user can configure the high alarm. The allowable range for the high alarm is 1–2% H₂. The default is set at 1.7% H₂ or 43% LFL. The user must select the ID Number then select the high alarm. This must be repeated for every ID Number.

2.5.2.3 Date & Time

When 'Date & Time' is selected, this button takes the user to a page where the user can input the date and time. The user has the option of formatting the date as either MM/DD or DD/MM view. The default is MM/DD.

2.5.2.4 Units

When 'Units' is selected, this button takes the user to a page where the user can change the measurement units for Hydrogen and Pressure. For Hydrogen, the user has the option of selecting % H₂ or LFL. For Pressure, the user has the option of selecting atm or bar. The defaults are % H₂ for Hydrogen and atm for Pressure.

2.5.2.5 Back

When selected, this button returns the user to the Menu page.

2.6 SELECT BUTTON

The HY-SIGHT's select button has multiple functions, including:

- Pressing the screen during either “Normal Operation” or “Alarm 1 (Low Alarm)” mode will take the user to the Menu.
- Pressing the screen during either “Alarm 2 (High Alarm)” or “Fault” mode will silence the alarm speaker. Another press will take the user to the Menu.
- A press and hold for ten seconds during any mode will initiate a system reset.

2.7 AUDIBLE SPEAKER

The following description explains the audible speaker logic for the HY-SIGHT:

- The audible speaker will activate when the HY-SIGHT detects that a HY-GUARD unit is in either an “Alarm 2 (High Alarm)” or “Fault” state. The audible speaker will be active until the user silences it by pressing down on the screen*.

*To silence the speaker on the HY-SIGHT, the user must silence each HY-GUARD ID individually by pressing down on the screen.

2.8 COMMUNICATION TEST MODE

The HY-SIGHT has a Communication Test Mode that will cycle through the low, high, and fault alarms for five seconds each to ensure the system is wired as intended. See [Figure 13](#) for reference.

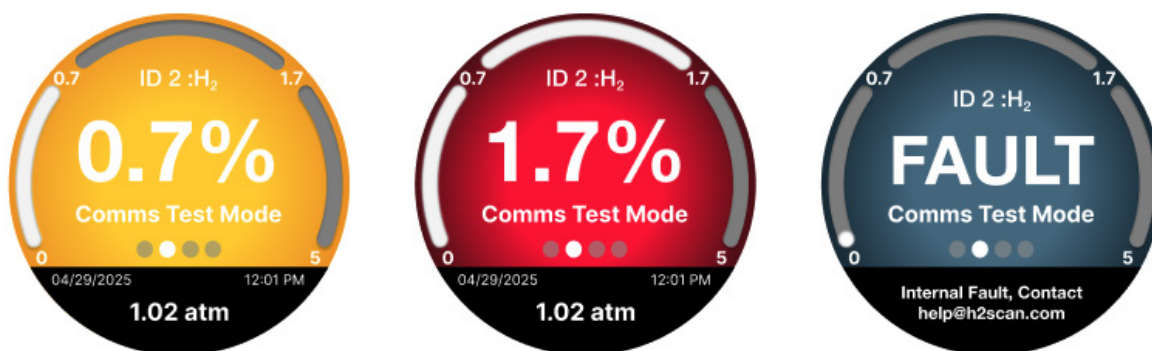


Figure 13: Communication Test Mode

1. Entering Test Mode
 - Go into the Menu page, select 'Device Info', select 'ID X' (X is the HY-GUARD ID number that the user wants to test), and select 'Communication Test Mode'.
2. Low Alarm - H₂ Simulation (five seconds)
 - Relay 1 will trigger, the Analog Output will indicate a low alarm.
3. High Alarm - H₂ Simulation (five seconds)
 - Relay 1 will remain triggered, relay 2 will trigger, the Analog Output will indicate high alarm.
4. Fault Condition Simulation (five seconds)
 - Relay 1 and Relay 2 will reset to the default state, the fault relay will trigger, Analog Output will indicate a fault.
5. If the user wants to run a Communication Test Mode on remaining HY-GUARDS
 - After the fault condition simulation, the unit will automatically return to the 'ID X' page, completing the test cycle. The user can test the next HY-GUARD ID by selecting the 'Back' button and repeating Steps 1–5 of the Communication Test Mode.

6. Exit and Return to Normal Operation

- After running the Communication Test Mode on all connected HY-GUARDs, the user can navigate back to the Home page by selecting 'Back' three times.

2.9 DATA, EVENT LOGS AND FIRMWARE UPDATES

2.9.1 DATA LOG

HY-SIGHT is intended to provide data and event logs for connected HY-GUARD units and HY-SIGHT system events. Data logs include measurement readings and status for connected HY-GUARDs. To download the data log, follow the steps below.

1. Go to 'Device Manager' on PC.
2. Expand Tab 'Ports (COM & LPT)'.
3. Connect the HY-SIGHT to a PC using a USB cable.
4. Take note of the COM port assigned to the device.
5. Download and extract HY-SIGHT data log download utility from [H2scan website](#).
6. Modify 'run.bat' with COM port number that was assigned in Step 4. Select the length of requested data from the table below.

Options	Length of Data
1	Past Hour
2	Past Day
3	Past Week
4	Past Month
5	Past Six Months
6	Past Year

7. Save changes to the batch file.
8. Double click 'run.bat' and the data log download will start.
9. After the download completes, it will generate a file called "hysight-datalog.csv" by default.

Example of 'run.bat' file:

```
rem Usage: hysight_dl_download.exe <pathfilename> <comport> <opt 1-6>

hysight_dl_download.exe hysight-datalog.csv com16 1
```

NOTE: If the requested data amount is more than what is actually stored, the HY-SIGHT will only provide all the data it currently has.

2.9.2 EVENT LOG

Event logs include alarm events, fault events, communication events, reset/silence actions, and configuration changes. To download the event log, follow the steps below.

1. Go to 'Device Manager' on PC.
2. Expand Tab 'Ports (COM & LPT)'.
3. Connect the HY-SIGHT to a PC using a USB cable.
4. Take note of the COM port assigned to the device.

5. Download and extract HY-SIGHT event log download utility from [H2scan website](#).
6. Modify 'run.bat' with COM port number that was assigned in Step 4.
7. Save changes to the batch file.
8. Double click 'run.bat' and the event log download will start.
9. After the download completes, it will generate a file called "hysight-eventlog.csv" by default.

Example of 'run.bat' file:

```
rem Usage: hysight_el_download.exe <pathfilename> <comport>

hysight_el_download.exe hysight-eventlog.csv com16
```

The event log contains HY-SIGHT specific fault events. The following table contains the fault codes for HY-SIGHT specific failures. Hex values labeled with an 'X' may be any value:

Fault Code	Description
0x00080000	Data Log Read Error - Failed to read from the data log
0x00040000	Data Log Write Error - Failed to write to the data log
0x00020000	Data Log Erase Error - Failed to perform an erase operation of the data log
0x00010000	Display Command Failure - Internal error where HY-SIGHT fails to complete a command.
0xXXXX8000	
0xXXXX4000	
0xXXXX2000	
0x00001000	Display Data Failure - Internal error where data was unable to be sent to the display
0x00000800	
0x00000400	Event Log Read Error - Failed to read from event log
0x00000200	Event Log Write Error - Failed to write to event log
0x00000100	Event Log Erase Error - Failed to perform an erase operation for the event log
0x00000020	Modbus Transaction Error - Received a failed response from a connected sensor
0x00000010	
0x00000008	RTC Error - Failed to internally set date/time of the unit
0x00000004	Speaker Error - Failed to start audio playback for the speaker
0x00000001	USB Error - Failed to send/receive data over USB

2.9.3 FIRMWARE UPDATES

Firmware updates may be performed through the USB-C port on HY-SIGHT using a laptop. To download firmware, follow the steps below.

1. Go to 'Device Manager' on PC.
2. Expand Tab 'Ports (COM & LPT)'.
3. Connect the HY-SIGHT to a PC using a USB cable.
4. Take note of the COM port assigned to the USB cable.
5. Download and extract HY-SIGHT firmware download utility from [H2scan website](#).

6. Download and extract the latest HY-SIGHT firmware package from [H2scan website](#).
7. Modify 'run.bat' with COM port number that was assigned in Step 4 and provide the name of the firmware file.
 - a. Update Main board:

```
rem Usage: hysight_fw_download.exe <pathfilename> <comport>
```

```
hysight_fw_download.exe hsmainRX_X.sfu com16
```

- b. Update Display:

```
rem Usage: hysight_fw_download.exe <pathfilename> <comport>
```

```
hysight_fw_download.exe hsdispRX_X.sfu com16
```

8. Save changes to the batch file.
9. Double click 'run.bat' and the firmware download will start.
10. After the download completes, the HY-SIGHT will reset.

2.10 HEALTH & MAINTENANCE

2.10.1 HY-GUARD BUMP TEST REFERENCE

HY-SIGHT displays hydrogen data from HY-GUARD. Sensor validation must be performed on the HY-GUARD detector according to the HY-GUARD operation manual using approved H2scan bump test equipment. HY-SIGHT should be used to confirm that the resulting alarm/status data is displayed correctly.

2.10.2 TROUBLESHOOTING

- If the user wants to manually enable or disable the terminating resistor, this can be done on the specific HY-GUARD unit. Press and hold the Infrared (IR) button on the HY-GUARD for 10 seconds to toggle the terminating resistor for RS-485 communication. The IR button is located in the center of the Main Control Indicators (LEDs) and is indicated by the finger icon. The audible buzzer will chirp three times to confirm the unit will configure the terminating resistor. At this point, the user can release the button. There will be a visual cue indicating whether or not the terminating resistor is enabled or disabled.
 - If the fault LED flashes green three times, the terminating resistor is now enabled.
 - If the fault LED flashes red three times, the terminating resistor is now disabled.
- If the user is unable to connect another device, they must go into the Menu page, select 'Device Info', select 'Eject All' and reconnect one device at a time. See [2.1.2](#) for steps.
- Ensure the enclosure is secure and mounting hardware is tight.
- For optimal performance, ensure you update the HY-SIGHT and HY-GUARD(s) to the latest Firmware.
- If you are unsure whether the device is operating correctly, use the Communication Test Mode to verify wiring integrity (see [2.8](#)).
- Review logs for recurring alarms, faults, communication loss, or reset events.

APPENDIX A: SPECIFICATIONS

Parameter	Value
Operating	
Sensors	Up to 4 HY-GUARD Sensors
Ambient Temp	3 to 50°C (37 to 122°F)
Storage Temp	-20 to 60°C (-4 to 140°F)
Humidity	0–95% RH (non-condensing)
Operating Altitude	Up to 2000 m above sea level
Electrical	
Display	Ø 2.1", 480×480 IPS with rotary encoder
Voltage Input AC (50/60 Hz)	100–240 ±10% VAC
Voltage Input DC	12–48 VDC
Power Consumption	5 W
Communication	RS-485 (Modbus RTU), USB-C (Service)
Mechanical	
Vibration	ISTA 6-FEDEX-A Test
Shock	ISTA 6-FEDEX-A Test
Weight	1.1 lbs (0.5 kgs)
Dimensions	5.1" x 5.1" x 3.1" (130 mm x 130 mm x 79 mm)
Speaker	82 dB at 3 ft

This equipment is capable of withstanding Overvoltage Category: II.

Pollution Degree 2: Normally only nonconductive pollution occurs.

APPENDIX B: CERTIFICATIONS & STANDARDS

- IEC 61010 (pending)
- EMC/EMI
- FCC Part 15*
- REACH
- RoHS

*This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.