

GrayWolf

Sensing Solutions



AdvancedSense XM User Manual

November 2023 v1.0

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DISCLAIMER:

Determining the suitability for use of any equipment described in this manual remains SOLELY THE RESPONSIBILITY OF THE END USER.

PRODUCT WARNING:

GrayWolf Sensing Solutions' probes, AdvancedSense™ XM kits are NOT suitable for use in flammable or potentially explosive environments. They are NOT certified intrinsically safe. They are also NOT intended for use in confined spaces where operator safety might be at risk due to exposure levels, such as reduced oxygen, during the course of the instrument survey.

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Introduction

GrayWolf Sensing Solutions, a leader for 25 years in indoor air quality and other environmental measurement solutions, proudly announces the launch of its groundbreaking professional-grade AdvancedSense XM Environmental Test Meter. This cutting-edge device, in conjunction with our highly reliable DirectSense® II probes, revolutionizes monitoring to improve the air we breathe, bringing advanced technology and unparalleled accuracy to the forefront of Indoor Air Quality (IAQ)/Toxic Gas Exposure/HVAC/Green Building management.

The AdvancedSense XM is the next generation of GrayWolf's purpose-built environmental meters. They now run advanced, yet very user-friendly, WolfOS™ application software without the overhead of operating systems such as Android or Windows. The XM utilizes the same rugged, popular form-factor as previous AdvancedSense versions, but with all-new, cutting-edge electronics, in addition to the new operating system.

The AdvancedSense XM continuously monitors air quality parameters and displays real-time readings on its intuitive LCD screen. It also features comprehensive data logging capabilities, allowing professionals to analyze historical trends, identify potential issues, and make data-driven decisions.

Simultaneously connect 1, 2, or even 3 GrayWolf DirectSense II probes with up to 8 sensors per probe plus a multi-channel, exceptionally reliable particulate meter (PM1, PM2.5, PM10, TPM and more). Available DSII sensors: TVOC, CO2, CO, O3, NH3, HCHO, H2S, NO, NO2, SO2, Cl2, O2, EtO, HCN, H2, HF, HCl, F2, AsH3, SiH4, ClO2, B2H6, COCl2, PH3, %RH, °C/°F (plus derived dewpoint, wet-bulb temperature, specific humidity, absolute humidity and humidity ratio). Bluetooth Low Energy for wireless connection to DirectSense II probes and WolfRadio XM-equipped particle meters (as a standard alternative to cabled connection).

The built-in Barometric Pressure sensor will compensate mass concentration readings for pressure changes when enabled. Include differential pressure, airspeed, and other parameters, for a comprehensive range of measurements.

Specifications

AdvancedSenseXM Views





AdvancedSense XM Specifications


General			
Dimensions	96.0mm (3.8in.) w. x 177mm (7.0in.) h. x 47.0mm (1.8in) d.		
Construction	Rugged polycarbonate plastic with rubberized side grips. IP64		
Weight	540gr (1lb. 3oz.) Add 50gr (1.7oz.) for auto-zeroing ΔP option		
Screen Size	3.5" HVGA 320 x 480 color touch screen with backlight		
Memory	32GB for data-logging (millions of readings) and notes (text/audio), documents and WolfSafe™ auto-data backup		
Wireless Network	Wi-Fi 802.11 b/g/n with integrated antenna and Bluetooth 4.0 standard (may optionally be ordered with wireless hardware removed)		
Audio	Integral electret microphone (on front, for audio recording) and 8 ohm speaker on back, for audio queues, help videos and audio note replay		
Mounting	¼" - 20 thread (on back) for belt clip, etc. (& for included mini tripod/stand)		
Operating Range	-10°C to 50°C (15°F to 122°F), 0 to 100 %RH non-condensing		
Connectors			
2x 8 Pin Lemo	2 x Rugged push-pull sockets for GrayWolf DirectSense II probes		
1x 7 Pin Lemo	1 x Rugged push-pull socket for particulate meters or RH-AS2 direct-connect °C/°F/%RH probe		
2x K Thermocouples	2 x sub-mini type K thermocouple temperature sockets. Range -80 to 1100°C (-110 to 2010°F)		
1x 8 Pin Lemo	1 x Rugged push-pull top socket for hotwire air velocity probes (AS-201/AS-202)		
1x USB-C	1 x USB-C socket. A USB-C to USB-A download cable is supplied as standard.		
1x DC Barrel socket	1 x 12V, 2.1mm DC power socket		
Power			
Battery	4250 mAh Lithium Ion rechargeable		
Battery Life	24 hours typical for new battery with backlight off (and probes self-powering) The AdvancedSense XM can power DirectSense II probes. Battery life will vary when powering probes, DP pressure sensors and/or wireless.		
Recharge Time	4 hours typical. Red/green front LED displays charging/fully charged status.		
Power Supply	100/240VAC, 50-60Hz external wall charger (US, EU, UK, AU plugs included)		
Built-in Sensors:			
	Barometric Pressure	Differential Pressure (Optional)	K Thermocouples
Range	600 to 825 mmHg, 800 to 1100mBar, 23.50 to 32.50 inHg, 0.80 to 1.10atm	±10,000Pa, ±40 inH2O, ±1000 mmH2O, ±100 mbar, ±70 mmHg	-80 to 1100°C (-110 to 2010°F)
Resolution	0.1mmHg, 0.1mBar, 0.01 inHg, 0.01atm	0.1 Pa, 0.001 inH2O, 0.01 mmH2O, 0.001 mbar, 0.001 mmHg	0.1°C, 0.1°F
Accuracy	±0.1% rdg	±1% of rdg ±0.1Pa up to 250Pa, ±1%rdg ±4Pa >250Pa (±1% of rdg ±0.001 inH2O to 1.000 inH2O, ±1%rdg ±0.015 inH2O>1.000 inH2O)	

(For additional sensor/probe specifications refer to GrayWolf's DirectSense II, IAQ, TOX, TVOC, AIR, and pitot tube brochures graywolfsensing.com/product-literature/)

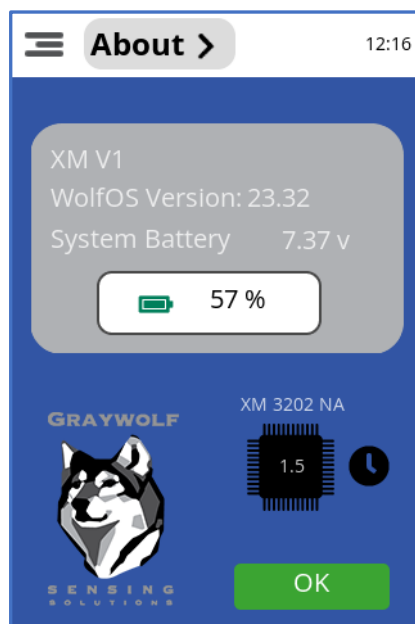
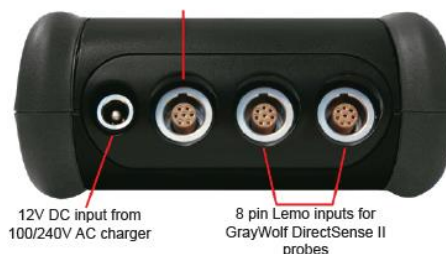
Powering

The AdvancedSense XM is powered on by pressing the power button on the front the unit. The unit features instant on/off capability because of brand-new internal hardware and efficient WolfOS™ operating software.

To power off, navigate to the Quick Access Tiles by pressing the Quick Access Dropdown **LIVE >** at the top of the screen. Press the power symbol  and the press **Power Off** to confirm. Alternatively, use the menu item **Power Off** by pressing the menu symbol  in the top left corner. Tap on **Settings** to enter a drop-down menu and select **Power Off**. Powering off will safely terminate any active trend log and power down the unit.
















The AdvancedSense XM is powered and charged with the included external AC power adapter. Plug the power adapter to wall power and then plug the 12V DC barrel connector into the bottom left socket of the AdvancedSense XM. The power adapter comes with interchangeable plugs for 100/240VAC, 50-60Hz US, EU, UK, AU plug standards. This is the same charger as provided with the DirectSense II Probe and may be used interchangeably. When charging, the AC charge indicator LED will appear red, and will appear green when fully charged. The typical recharge time is 4 hours. The battery charge status can be found by navigating to the menu , pressing **Settings** and then **About**. Press **OK** to return to the Live view.















The AdvancedSense XM has a battery life of 24 hours when screen auto-dim is enabled, wireless is off, and probes are self-powering. The battery life of the unit will vary based on screen brightness, powering probes, and number of external probes connected.



Navigation


Icon Descriptions

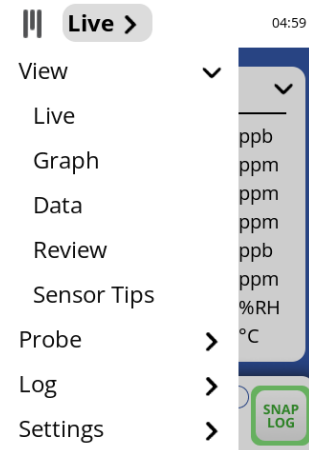
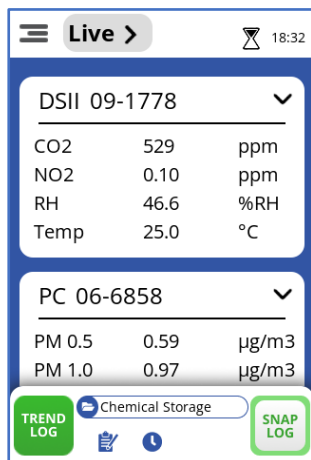
Status Bar Icons	
	Menu button. Pressing will access the drop-down menu items such as View, Probe, Log, and Settings.
	Quick Access Dropdown. Pressing will display the Quick Access Tiles for navigating to common functions such as powering off and data review. Note: This button will be labeled differently depending on the current view on screen.
	System Battery is Low (icon appears when battery has 35% life remaining); if not plugged in, the system will shut down. Probes will not be powered while the AdvancedSense XM is at low battery.
	System Battery is Full.
	Probe Error (Calibration, Pump/Laser Issues/ Probe LOW/Critical Battery) – Click to view Probe Info.
	Probe Search in progress. While this icon is on screen, the system is searching for BLE probes and Particle Counters. * ** * Probe reading response will be diminished during Search **System will always search for wired DSII probes. New wired probes are typically found within 1 minute of being connected.
	Data Logger is running.
	Data Logger has had an error.
	Probes are stabilizing.
4:26	Clock. Displays in 12 or 24-hour time. Tap to obtain Logger status and Probe Info.
Quick Access Tiles	
	Power Off button on Quick Access Tiles. Will safely terminate logger and power off AdvancedSense XM.
	Data Transfer button on Quick Access Tiles. Pressing will place AdvancedSense XM in transfer mode for exporting data to a computer via USB-C connection.
	Return to Live view.
	Select location file for reviewing graphs of data.
	Select location file for reviewing data tables.
	Location review screen, for creating, modifying or deleting Sites and Locations.

Data Logger Icons	
	Trend Log button on Live view screen. Pressing will launch Start Log screen for setting log interval and initiating Trend Logging.
	Snapshot Log button on Live view screen. Pressing will take a Snapshot log and save to whatever Location file is currently selected.
	Location Review button on Live view screen. Pressing will open the Location Review screen for creating or editing Locations.
	Add Text Note to active Location.
	Add Event Note to active Location.
	Add Audio Note to active Location.
	View Graph of selected Location.
	View tabular data of selected Location.
	Site Symbol in Location Review screen.
	Location Symbol in Location Review screen.
	Create new Site button.
	Create new Location button.
	Delete Site or Location button.
	Rename Site or Location button.

Navigating in WolfOS

WolfOS provides a fast and user-friendly way to access features on AdvancedSense XM. The device boots into the Live screen and immediately begins searching for probes. The Live screen acts as the home screen in WolfOS and key features are accessed here, such as probe readings and trend logging. After an action is completed, such as changing a setting or viewing probe info, WolfOS will always return to the Live screen.

The Status bar at the top of the screen will always be on display, providing access to the Quick Access Tiles and the Menu. The Quick Access Tiles contain shortcuts for frequently used items such as powering off AdvancedSense XM and viewing tabular/graphical data. The gray button for Quick Access Tiles **LIVE >** will display the title of the current screen. The Menu  provides access to every feature available on the AdvancedSense XM with a familiar nested menu structure.



Probe Connection


DirectSense II Connection

The AdvancedSense XM can connect to DirectSense II probes via cable or wirelessly via BLE (Bluetooth Low Energy). Up to (4) DirectSense II probes can be interfaced at once: (2) via cable and (2) via BLE.

VIA CABLE

To connect a DSII probe to the AdvancedSense XM, connect the male 10-pin Lemo end (with blue cable strain relief) of the AD-DSIIL8-1M connection cable to the base of the DSII probe. (Alternatively, if using the DSII charging cradle, connect the 10-pin Lemo end (with blue cable strain relief) to the right side of the cradle.) Plug the male 8-pin Lemo end (with black cable strain relief) into either of the two right most ports on the bottom of the AdvancedSense XM. Power on the DSII probe first and then the AdvancedSense XM. The meter will automatically search for external probe connections.

WIRELESSLY VIA BLE

To connect a DSII probe to the AdvancedSense XM, first power on the probe and then the meter. Once on, the AdvancedSense XM will automatically search and discover any BLE-enabled GrayWolf devices. If you are having trouble connecting a DSII probe via BLE, it is important to check that both the AdvancedSense XM and the DirectSense II probe have BLE enabled. To confirm the setting on the DSII probe, you may use the DSII Configuration Tool or WolfSense LAP on a Windows computer. Further instructions can be found in the “DSII BLE QuickStart”. On the AdvancedSense XM, navigate to the menu by pressing the  icon in the top left corner. Press **Settings** and then **Options**. On the Options screen, the first icon at the top is for the meter’s BLE setting. Make sure **BLE ON** is enabled and click **Save**.

Compatibility

DirectSense II probes with firmware greater than 1.86 are compatible with the AdvancedSense XM via cable. DSII probes manufactured after September 2021 (with WolfRadio installed) can connect via BLE. Probe firmware can be checked by connecting to the DSII Config tool or WS LAP and using **Status / Get Status**. Contact your sales representative or SalesTeam@GrayWolfSensing.com for additional compatibility and upgrade details.



Particle Meter Connection

The AdvancedSense XM can connect to a variety of GrayWolf particle meters directly via cable or wirelessly via BLE (the particle meter requires the appropriate WolfRadio-XM module).

VIA CABLE

To connect a **PC-3016** particulate meter to the AdvancedSense XM, use the AD-L71M-PC3016 connection cable by first plugging the RJ-45 end into the side of the Particulate meter. If connecting a **PC-3500/4000/5000** particulate meter, use the AD-L71M-PC345 connection cable by first plugging the 5-pin DIN end into the side of the Particulate meter.

Plug the male 7-pin Lemo end (with green cable strain relief) to the left most female Lemo connector on the bottom of the AdvancedSense XM. Power on the Particulate meter and the AdvancedSense XM and it will automatically search for the Particulate meter.



AD-L71M-PC3016 connection cable for connecting the PC-3016 particulate meter



AD-L71M-PC345 connection cable for connecting the PC-3500/4000/5000 particulate meter

WIRELESSLY VIA BLE





The Particulate meters may also be connected via BLE with the use of the appropriate WolfRadio-XM-modules. These GrayWolf-manufactured modules add BLE and Wi-Fi functionality to the particulate meters GrayWolf offers.


To connect a particulate meter to the AdvancedSense XM via BLE, start by mounting your WolfRadio-XM module to your particulate meter and powering both devices on. Next, power on your AdvancedSense XM and it will automatically search for the WolfRadio-XM module over BLE. Connection should be made in less than 1 minute. For additional information on the WolfRadio-XM modules, please see the “WolfRadio XM PC3500 PC3016 QuickStart Guide” or contact SalesTeam@GrayWolfSensing.com.



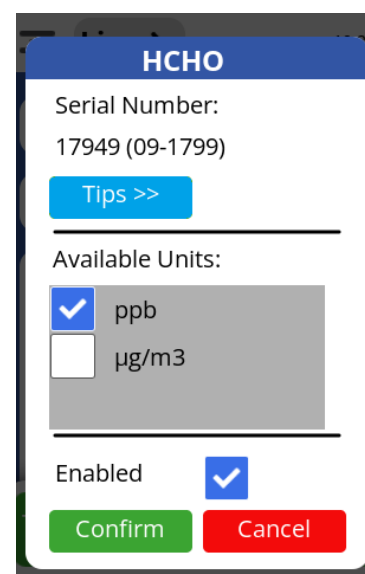
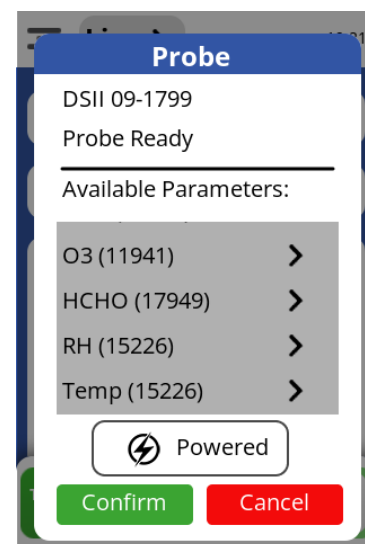
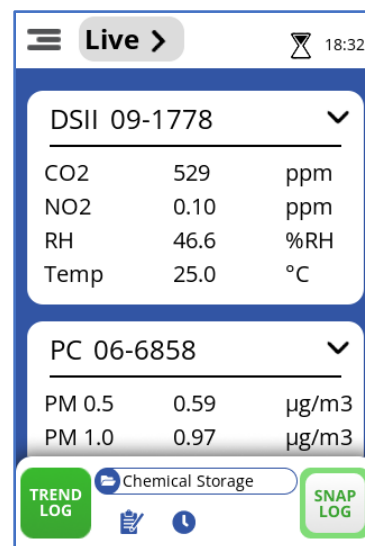
WolfRadio-XM-3016 and WolfRadio-XM-3500 installed on Particulate Meters

Live Readings

The Live view is the main screen of WolfOS™ and what the AdvancedSense XM boots into. The Status bar at the top of the screen is where the menu  and Quick Access Tiles  are accessed. On the right of the Status bar, the time and key status symbols such as probe connection and stabilization are displayed. The Data Logger bar at the bottom of the screen contains tools such as starting Trend Logs  and adding Event Notes  to Logs. Live Readings will populate from any connected probes and the built-in barometric pressure (standard) and/or differential pressure (optional) sensors.


Probes and readings that do not fit on screen are accessed by scrolling vertically. Each probe is depicted by its own box which contains the Probe ID (serial number) at the top, and the active parameters within that probe. Individual probes can be displayed or hidden by tapping the dropdown arrow  at the top right of each box. Tapping on the Probe ID will open the Probe Information window. This contains the probe status, the available parameters, and the battery status of the device. Press **Confirm** to close the window.





Tapping on a parameter within the Probe Information screen or directly on the Live screen will display the Parameter Information window which provides access to Sensor Tips, changing the displayed units, or enable/disable the parameter from Live view. In the Parameter Information screen, view Tips (including Government and Industry Guidelines, Typical Sources, etc.), change units by selecting the desired unit. Enable or disable a parameter by toggling the **Enabled** check box. Disabling a parameter removes it from the Live view and from being data logged. Press **Confirm** to save changes.







Creating Sites & Locations

The AdvancedSense XM has built-in trend logging functionality for recording readings from all connected devices at once and saving to a single data file. These data files, called **Locations**, can be organized on the device with the use of folders, called **Sites**.

Before starting a Trend Log, a Location must be either selected or created for the data to be saved to. The Location Review screen is easily accessed directly from the Live view by pressing the Location Review icon  at the bottom of the screen. Location Review can also be reached through the Quick Access Tiles by pressing the Quick Access Dropdown **LIVE >** at the top of the screen, and then pressing the Location icon.

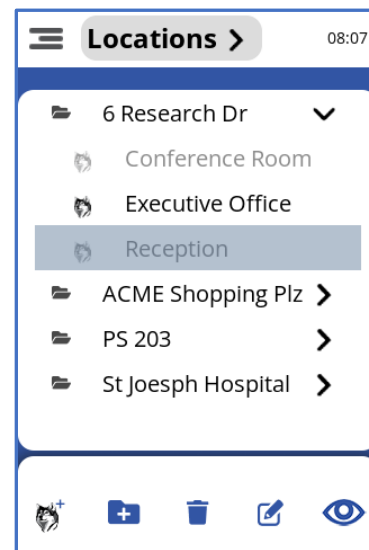
On the Location Review screen, you will see sample Sites  (folders) and Locations  (data files) illustrating the organizational structure. Sites behave just like folders and can be expanded to view the contents by pressing the dropdown arrow at the end of the name . To create a new site, press the new Site icon , enter a name* and then press **Confirm**. To nest a subsite within an existing Site, first select and highlight the existing Site and select the Site icon to create the subsite. Independent Sites can also be created which are not nested within another folder. To create an independent Site, tap in the BLANK area (so nothing is highlighted) and use the new Site icon.

Locations behave as data storage files and contain any logged data and notes added to that Location. To create a new Location, first highlight the Site it will be created in. Press the new Location icon , enter a name and then press **Confirm**. Note, empty Location files will display in gray text. Location files that contain data will display with black text.

At the bottom of the screen there are also icons for deleting Sites or Locations , Renaming Sites or Locations , and Reviewing the data within a Location .

**Certain symbols cannot be used in Site/Location names, including:*

*. \$ * " ' : / ? ~ • < > | *



Creating Trend Logs

Before datalogging, ensure that all probes are stabilized and there is no stabilization symbol displaying in the top right corner of the screen. A 5-minute stabilization period allows sensors to warm up and acclimate to the environment, and for the user to obtain the most accurate readings with the device.



The built-in logger in the AdvancedSense XM can be accessed directly from the Live view by pressing the Trend Log button, or by going through the **Menu**, then **Log**, then **Start Log**. From the Start Log screen, start by tapping the Location button at the top. When the Location view opens, select and highlight a Location file to log to. To create a new Location, use the tools at the bottom of the screen. Once a Location is chosen, press the **OK** button at the top right and return to the logger configuration.



Next, select the preferred log interval. Press the plus and minus symbols for minutes and seconds to set an interval from a minimum of 1x/second, to a maximum of 99 minutes and 59 seconds.

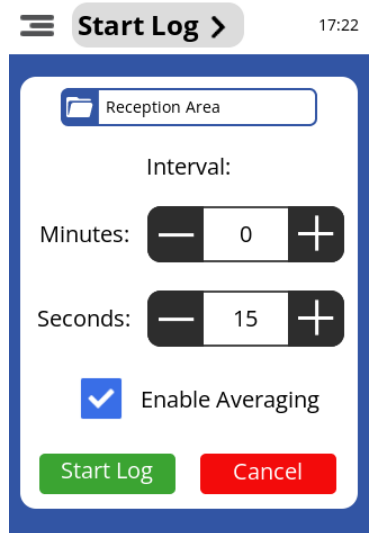
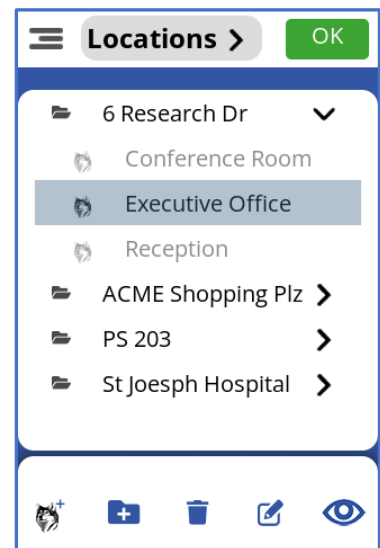
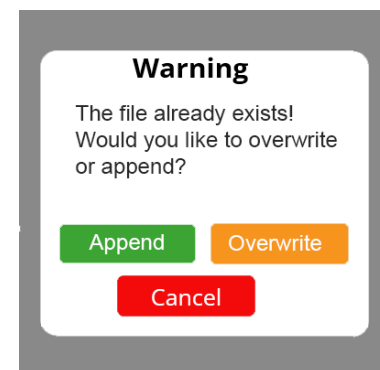
The check box **Enable Averaging** controls if averaged or instantaneous readings are saved to the Trend Log. Average readings are averaged over the log interval. For example, if the Trend Log interval is 1-minute, readings are averaged in a sliding buffer for 1 minute up until a sample is stored. Instantaneous readings are the current live readings, saved to the Trend Log un-averaged.

Once the location is chosen and log settings are configured, press **Start Log**. If a log file that already contains data is selected a Warning screen will appear, asking to either **Append** to existing data, **Overwrite** any existing data, or **Cancel** the new log. A Log Status screen will confirm the log in progress.

To stop the Log, press the now red Trend Log button, or go to the **Menu**, then **Log**, then **Stop Log**.






In the top right corner of the screen, the Log Running symbol  or the Log Error symbol  will display to indicate the status of the logger. Press the **Time** in the top right corner to display the log status.

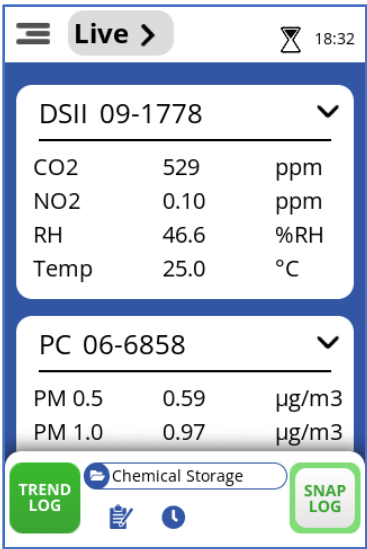
The "Start Log" screen features a blue header with a menu icon, "Start Log >", and a timestamp "17:22". Below is a search bar containing "Reception Area". The "Interval:" section has sliders for "Minutes:" (set to 0) and "Seconds:" (set to 15). A checkbox labeled "Enable Averaging" is checked. At the bottom are "Start Log" (green) and "Cancel" (red) buttons.The "Locations" screen has a blue header with a menu icon, "Locations >", and an "OK" button. A list of locations is shown: "6 Research Dr" (selected), "Conference Room", "Executive Office", "Reception", "ACME Shopping Plz", "PS 203", and "St Joesph Hospital". Each item has a folder icon and a chevron. At the bottom is a toolbar with icons for adding, deleting, editing, and viewing.A "Warning" dialog box with a white background and a gray border. The text reads: "Warning", "The file already exists!", "Would you like to overwrite or append?". There are three buttons: "Append" (green), "Overwrite" (orange), and "Cancel" (red).

Creating Snap Shot Logs




The Snap Shot Log is an efficient way to store sets of readings while performing a walk-through survey. A Snap Shot log is a single instantaneous recording of the live readings to a Location file.





To start, select the target Location file by pressing the Location symbol  at the bottom of the screen. Select or create a Location file to save the Snap Shot log to. Return to the Live screen by pressing the Quick Access Dropdown **Locations >** and pressing **Live**. Press the Snap Log button to initiate a Snap Shot log, or go to the **Menu** , then **Log**, then **Snap Shot Log**. 

Feature Coming later. Alternatively, if you have enabled the DSII LOG button, Settings (See next section), you can initiate the log from the DSII probe by pressing the LOG button on the probe.





Reviewing Data on AdvancedSense XM

Logged data can be reviewed in either tabular or graphical formats on the AdvancedSense XM. For tabular data review, tap the Quick Access Dropdown icon  at the top of the screen, and then press the **Tabular** icon . Next, select the desired location for review and press the review icon . Location data will display with separate parameter columns and timestamped rows. Scroll horizontally or vertically to review additional data in the file.

For graphical data review, tap the Quick Access Dropdown icon  at the top of the screen, and then press the **Graph** icon . Select the desired location for review and press the **Graph** icon . Next, select the desired parameters and time range to display and press the **Graph** icon .


Scroll horizontally to move through the graphed data. The Y-axis will auto-scale for the data on screen.

Both tabular and graphical review can also be accessed by going through the **Menu**  and then **View**. An additional feature in the menu, called **Review**, allows you to display the previous five minutes worth of live readings.


 **Tabular Data >** 17:37


30-OCT-2023


Time	TVOC ppb (09-2342)	CO ppm (09-2342)
12:46:17	116	1
12:47:17	114	1
12:48:17	113	1
12:49:17	113	1
12:50:17	114	1
12:51:17	113	1


 **Graph >** 17:37

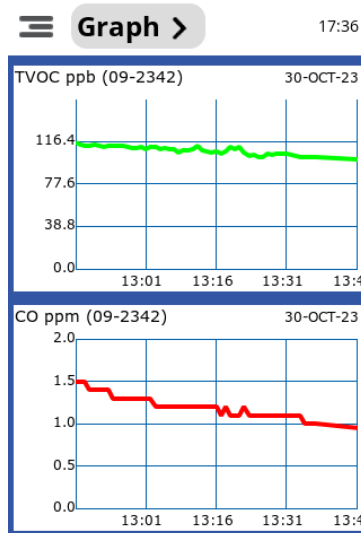
Select Parameters and Time Scale.

TVOC ppb (09-2342) 


CO ppm (09-2342) 

1 hour 





Exporting Trend Log Data

To export logged data from AdvancedSense XM, tap the Quick Access Dropdown **LIVE >** at the top of the screen. Press the **Transfer** icon  to put the AdvancedSense XM in Data Transfer mode. This will safely terminate any active logs to allow for data transfer.

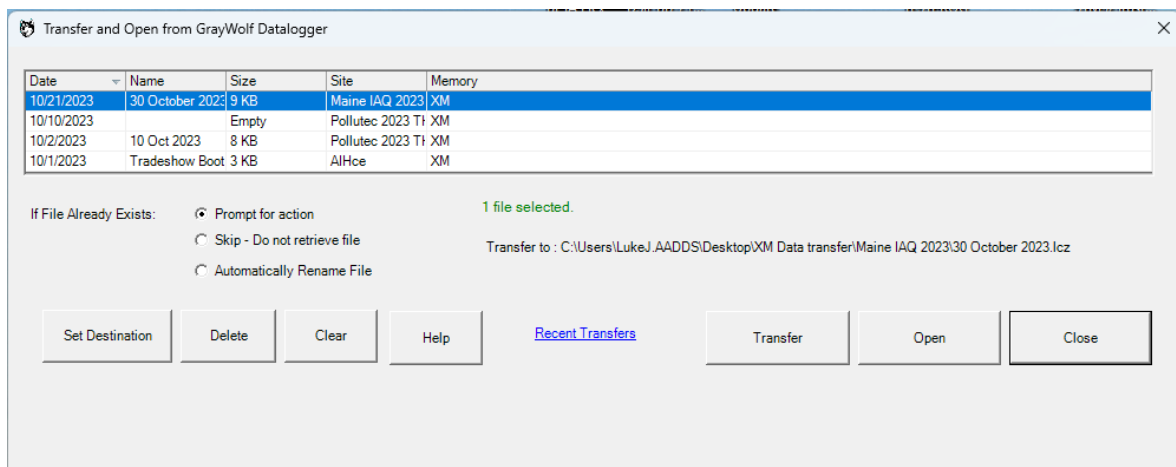
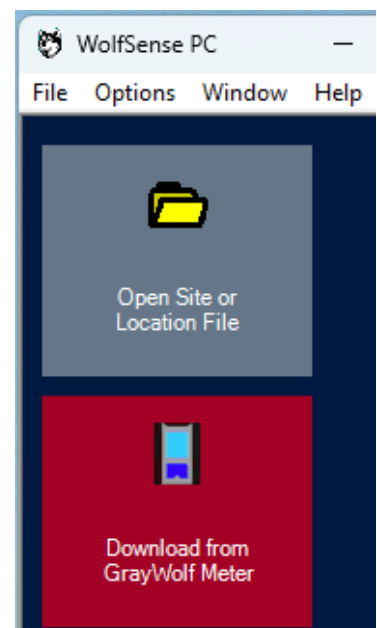
Use the supplied AD-USBC-A-1M (USB-C to USB-A data cable) and connect the USB-C end to the top of the meter and the USB-A end to a Windows computer.

NOTE: The AdvancedSense XM connects as a USB drive to your computer. If prompted, **do not format the drive, or risk losing all data on the unit.** It is okay to scan and repair the drive if prompted, but first safely eject the AdvancedSense XM, power cycle and attempt connection again.

Once connected, open up WolfSense PC and select the **Download from GrayWolf Meter**. WolfSense PC will automatically find the logged data files on the AdvancedSense XM where they can be transferred or opened for review.

WolfSense PC is free to all GrayWolf customers. Register and download from the GrayWolf Customer Portal at <https://graywolfsensing.com/portal>

After the data transfer is complete, safely eject the AdvancedSense XM from the computer and disconnect the USB connection cable.



Warranty

GrayWolf Sensing Solutions LTD (hereafter referred to as "GrayWolf") will warranty parts and labor for any manufactured defects in our products for 12 months. The warranty does not cover abuse (e.g. products crushed, dropped, electrically shocked, heat stressed or water saturated), hazard, accident, transportation or causes beyond ordinary use. All service, including repair, maintenance and sensor replacements, must be performed by GrayWolf, or one of its authorized service centers. Defects on finished goods manufactured by others, such as computer systems, are excluded and are covered by the original manufacturer's warranty (usually one year).

LIMITATION OF WARRANTY AND LIABILITY for **GrayWolf Products:**

- a) Except as otherwise agreed in writing, GrayWolf warrants, under normal conditions of operation, each product sold (except for finished products not of its manufacture) against defects of material and workmanship, provided that such product has been properly utilized. This warranty applies to the original purchaser only and shall commence to run from the date of shipment and shall continue for a period of twelve (12) months. In any event, GrayWolf's liability for any such defects of material and workmanship shall not exceed the cost of replacement of defective parts upon timely notification of such defect in writing delivered to GrayWolf's North American home office. GrayWolf shall not be liable for damage or destruction caused during delivery or caused other than by employees of GrayWolf.
- b) GrayWolf shall, at its option, repair such defects or replace the parts or products found defective. All defective parts are to be returned, freight prepaid, immediately to GrayWolf. GrayWolf will make no allowance for repairs or alterations made by the purchaser unless made with the advance written consent of GrayWolf. GrayWolf assumes no liability for costs of disassembly of defective parts and equipment. Shipment by purchaser of all repairs and replacements under this warranty are F.O. B. GrayWolf's factory, North American service facility or authorized service representative and method of shipment will be determined by GrayWolf. The purchaser will pay shipping costs and insurance in both directions of products, parts, or components shipped for warranty service hereunder. The purchaser will be responsible for risk of loss in both directions. Replaced parts or components will become the property of GrayWolf. Replacement parts or components may contain recycled, refurbished, or remanufactured parts equivalent to new parts and shall be warranted for the remainder of the original warranty period for the products.
- c) Products that are not covered by warranty, such as products that have been subjected to physical misuse or are beyond the warranty period, will have an estimate submitted before the repair work commences. All out-of-warranty repairs carry a 90 day warranty from the date of return shipment.
- d) GrayWolf shall not be liable for delays, deprivation of use, or any other damages, direct or indirect, which may result to the purchaser because of defects in the product or because of the purchaser's inability to operate it or use it to purchaser's satisfaction. GrayWolf will not be liable to anyone for special or consequential damages of any kind. GrayWolf neither assumes nor authorizes any person to assume for it, any other obligation or liability with respect to GrayWolf products. GrayWolf does not warranty that the equipment is fit for any particular purpose unless the purpose is specifically advised to GrayWolf in writing and specifically confirmed by an officer of GrayWolf to you.
- e) Finished goods manufactured by others, including computers, batteries, carrying cases and bar coding wands are not warranted by Graywolf, but are covered by the original manufacturer's warranty.

EXCEPT FOR THE FOREGOING EXPRESS WARRANTY, THERE ARE NO WARRANTIES, REPRESENTATIONS, OR GUARANTEES, EXPRESS OR IMPLIED, EXCEPT AS ARE EXPRESSLY SET FORTH HEREIN. THE FOREGOING WARRANTY IS THE ONLY WARRANTY MADE BY GRAYWOLF. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS PRODUCT IS LIMITED IN DURATION TO THE ONE YEAR DURATION OF THIS WRITTEN WARRANTY, AND IS STRICTLY LIMITED TO THE RETURN AND REPAIR OR REPLACEMENT OF THE EQUIPMENT. IN NO EVENT SHALL ANY CLAIM EXCEED THE EQUIPMENT PRICE PAID BY THE PURCHASER. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR FOR THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.