

# Advanced Environmental Instrumentation

## Harnessing the Power of Mobile Computing



✓ Surveyed

✓ Documented

✓ Reported



# ADVANCEDSENSE® DIRECTSENSE® IAQ

Indoor Air Quality Meters/Monitors

Realtime

File	Log	Probe	View
TVOC		56	ppb
Carbon Dioxide		945	ppm
Carbon Monoxide		0.3	ppm
Ozone		0.01	ppm
Temperature		18.9	°C
Relative Humidity		37.3	%RH
PM 2.5		5.1	µg/m3
PM 10		38.6	µg/m3

Menu Snap Live: Bldg 6\General Office

### Example Screens

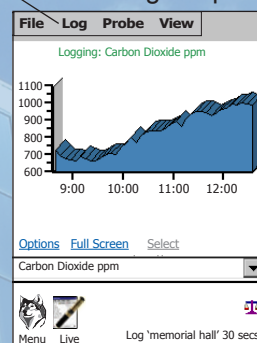
Click the SNAP icon (or the LOG button on DSII probes) to record measurements, time, date and detailed location name

### Snap-Shot Log

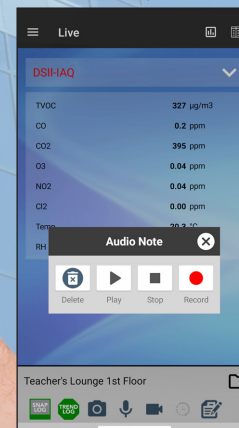
File	Log	Probe	View
TVOC		367	µg/m3
CO2		747	ppm
CO		0.0	ppm
O3		0.00	ppm
Temp		77.2	°F
RH		24.3	%RH

Menu Snap Live: 3rd floor\Mens Room

### Trend Log Graph



### Audio Note (Android Screen)



GrayWolf is transforming the way that environmental measurements are taken. GrayWolf's IAQ kits harness leading edge sensor technology with the power and performance of mobile computing. Efficiently display, document, access educational info (on-site) and report on IAQ parameters.

- An essential component of any professional IAQ program
- Organizes ALL survey info; data, text, calibration history and more...
- Measure VOCs, CO<sub>2</sub>, CO, O<sub>3</sub>, NO<sub>2</sub>, HCHO, %RH, Dewpoint, Temperature and more... accurate and fast. Industry leading CO<sub>2</sub> accuracy at +/- 35ppm over the IAQ range
- Plus Particulate (PM<sub>2.5</sub>, PM<sub>10</sub>, TSP+), other Gases (e.g. NH<sub>3</sub>, Cl<sub>2</sub>, H<sub>2</sub>S), Differential Pressure, Airspeed & more... all simultaneously
- WolfSense® PC desktop software is included for data review, graph creation, cut & paste report generation
- Optional Advanced Report Generator software for automated, ultra-efficient, detailed IAQ reports
- Tap the screen for educational info: sensor tips, on-board help videos, IAQ documents and guidelines
- Intuitive and extremely Easy-To-Use



**GRAYWOLF®  
SENSING SOLUTIONS**  
PH. 1-203-402-0477

EMAIL:  
SALESTEAM@  
GRAYWOLFSENSING.COM

WEBSITE:  
WWW.GRAYWOLFSENSING.COM

# Choose Your Platform:

**AdvancedSense®**  
Purpose-built GrayWolf Meters



**GrayWolf Supplied Windows Tablets**  
(or use your own WIN tab/laptop/PC)



**Apple iOS and Android Devices**  
(use your own or GrayWolf supplied)



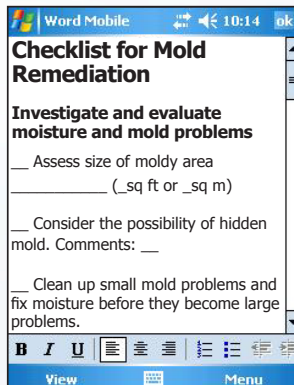
**GrayWolfLive™ Cloud App**



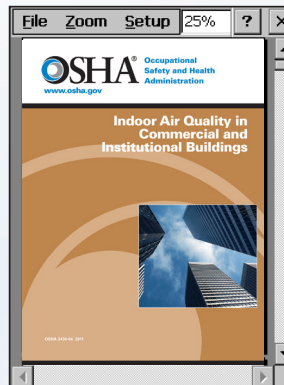
**Remote Data Access** via Wi-Fi direct to DirectSense II probes, WolfRadio XM enabled Particle/DP meters and more via optional **GrayWolfLive**

## Example AdvancedSense Screens

Field Form



On-Board Docs



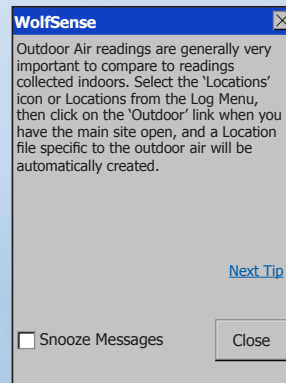
Video Help



Realtime (multi-probe)

File	Log	Probe	View
TVOC			1364 µg/m3
Carbon Dioxide			766 ppm
Carbon Monoxide			0.2 ppm
Hydrogen Sulfide			0.34 ppm
Temperature			23.2 °C
Relative Humidity			28.7 %RH
Formaldehyde			18 ppb
Particulate			49.4 µg/m3
Barometric			760 mmHg

Interactive Data template attached  
 Video attached  
 Text template Attached  
 Probe Cal Info attached



**Operational Tips**  
(extensive on-board meter and sensor info)

Display measurements in realtime. Access "sensor tips", IAQ documents and guidelines on-screen. Store "snapshot" readings. "Trend" log over hours/days/weeks/months/years. Document each measurement location with text, graphic, even audio notes. Also attach photos, videos, IR images, time-stamped event notes, calibration history and other info to data files.

- Optimize the balance between ventilation energy efficiency and occupant performance, health and wellness.
- Easily establish baseline data & respond immediately to complaints
- Test conditions before and after building modifications
- Validate low-cost continuous monitors in-situ
- Track down (bloodhound) pollutant sources

## Example WIN Tablet/Lap Screens

Realtime (DSII plus Particulate & Formaldehyde)

TVOC	317 ppb
Carbon Dioxide	793 ppm
Carbon Monoxide	2.1 ppm
Ozone	0.05 ppm
Temperature	23.8 °C
Relative Humidity	25.0 %RH
PM 0.5	2.71 µg/m3
PM 1.0	6.19 µg/m3
PM 2.5	7.93 µg/m3
PM 5.0	12.22 µg/m3
PM 10.0	24.67 µg/m3
TPM	37.62 µg/m3
Formaldehyde	18 ppb

Realtime (DSII plus PM10 Particulate Concentration)

Temperature	75.1 °F
Relative Humidity	51.4 %RH
Carbon Monoxide	1.4 ppm
Carbon Dioxide	950 ppm
Particulate	1.1 µg/m3

DirectSense probes can also connect directly to Windows 8/10/11 PCs using GrayWolf's WolfSense LAP software app.

# TVOCs

## Carbon Dioxide

## Carbon Monoxide

## Relative Humidity

## Temperature

### + up to 3 more gases

Highly accurate, extremely fast response sensors. Perfect for walk-through surveys, rapid response to complaints, quick outdoor air comparisons, for long-term IAQ trending and for continuous monitoring (on-board and/or via WiFi). Track VOCs over time, rapidly blood-hound VOC sources or determine optimum locations and times to take air samples for VOC speciation via lab analysis.



### DSII-8

Choose the sensors that you need for IAQ applications, up to 8 total (5 for the DSII-5). Typically TVOCs, CO<sub>2</sub>, CO, %RH and C°/F°. Add O<sub>3</sub>, NO<sub>2</sub> and/or other parameters, choosing from:

- Ozone
  - Nitrogen Dioxide
  - Formaldehyde
  - Nitric Oxide
  - Ammonia
  - Chlorine
  - Hydrogen Sulfide
  - Sulfur Dioxide
  - Oxygen
- And even toxic gases such as: CH<sub>2</sub>O, HCN, HCl, H<sub>2</sub>, EtO, SiH<sub>4</sub>, AsH<sub>3</sub>, ClO<sub>2</sub>, HF, F<sub>2</sub> and more...



### ZEPHYR-LDP

Differential Pressure Module (option for barometric pressure and wireless connection via WolfRadio XM)



Interface these meters to GrayWolf platforms; and/or use as stand-alones



**PC-3016A**  
6-Channel Particle Meter (optional WolfRadio™ XM to transmit data directly to the cloud, iOS or Android)



**PM-601**  
Particulate Concentration



**AS-202A**  
Air Velocity probe telescoping with 90° articulating tip and laser etched cm & inch scales (now available with WolfRadio XM option)

Expand your GrayWolf system as your measurement needs grow and as industry and legislative requirements change.



# ADVANCEDSENSE<sup>®</sup> DIRECTSENSE<sup>®</sup> IAQ

## Indoor Air Quality Meters

### SPECIFICATIONS: DSII-3/5/7\*, DSII-8\*

\*DSII SENSORS CAN BE MIXED AND MATCHED TO BEST SUIT YOUR APPLICATION; TRH + up to 6 SENSORS (8 total) for DSII-8, TRH + 5 (excepting CO2) for DSII-7, TRH +3 for DSII-5, TRH + 1 for DSII-3

**Carbon Monoxide:** (electrochemical) Range: 0 to 500ppm

Accuracy: ±2%rdg ±1ppm

**Carbon Dioxide:** (NDIR) Range: 0 to 10,000ppm

DSII Accuracy: ± 35ppm over the IAQ range (350ppm-2000ppm)  
± 35ppm ±3%rdg >2000ppm

**VOCs:** (PID) Range: 0 to 20,000ppb

(user selectable units: ppb, ppm, µg/m3, mg/m3)  
Resolution: 1ppb, L.O.D. <5ppb

10.6 eV PIDs do not respond to VOCs with ionization potentials >10.6, such as ethane, methane or formaldehyde. However, they do respond to the vast majority of VOCs of concern for IAQ. Standard calibration is to Isobutylene. 3 higher range PID sensors are available.

Contact GrayWolf for specifications.

**Relative Humidity:** (capacitive) Range: 0 to 100 %RH

Accuracy: ±2%RH <80%RH (±3%RH>80%RH)

**Temperature:** (Pt100) Range: -10° to 160°F (-25° to +70°C)

Accuracy: ±0.3°C

**Response Time** (for all above sensors): 90% response <1 minute

DSII Probe Dimensions\*\*: 3.3"(83mm)W x 2.2"(55mm)H x 11.6"(295mm)L

Weight (probe): without sensors 1lb. (0.46kg)

\*\*Refer to DirectSense II brochure

<https://graywolfsensing.com/brochures/GrayWolf-DSII-Probe-Brochure.pdf>

for DSII charging cradle/desk-stand/wall-mount dimensions, rechargeable Li-Ion battery life and additional specifications.

### Operating Range

PID (VOC) sensors: 0 to 90%RH, -15 to 60°C

Probe & other sensors: 0 to 98%RH (non-condensing), -15 to 60°C

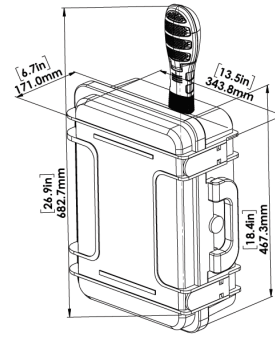
WolfSense PC Software Requirements: Windows 8/10/11

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT FURTHER NOTICE

- Refer to <https://graywolfsensing.com/brochures/DSII-TOX-Brochure.pdf> for specifications on additional available sensors.
- AdvancedSense IAQ** kits include an AdvancedSense meter. **DirectSense IAQ TAB** kits include a WIN10 tablet PC (or substitute a rugged Android device). These complete kits also come with probe, WolfSense PC desktop data transfer software, hardshell security case, and more. Contact GrayWolf for details.
- Alternative carry cases and other accessories are also available from GrayWolf. View them on our website at: [GrayWolfSensing.com/Accessories](http://GrayWolfSensing.com/Accessories)

✓ Measure Smart

✓ Report Efficiently



**PCC-20 DSII Security Case** ▲  
(shown above w/optional ACC-BRK1 brackets for external particle meters)

**ACC-TPDL-KIT** includes tripod and mounts for various meters/probes, plus nylon carrying pouch ▼



◀ **CA-HD4-A1**  
Gas Calibration Cap for DSII Probes

◀ **ACC-BELTCL-2DSII**  
Optional rigid belt-clip assembly for DSII probes (bottom) or swiveling, snap-detach ACC-BELTCL- 3DSII belt-clip (top).

▶ **PCC-25** Security Case for 2 x DSII probes plus choice of platform. Alternatively, **PCC-35** for 1 x DSII, 1 x Particle Meter (internal while logging) plus choice of platform.



▶ **CA-GS25L-DSII** TVOC Calibration Kit for DSII probe low-range PID sensors. NIST traceable reference gases are also available for high range PIDs, CO2, CO and other gases.



## GRAYWOLF<sup>®</sup> SENSING SOLUTIONS

6 RESEARCH DRIVE (WORLDWIDE HEADQUARTERS)  
SHELTON, CT 06484 USA  
PH. (1) 203-402-0477  
800-218-7997

EMAIL: SALESTEAM@GRAYWOLFSENSING.COM

[WWW.GRAYWOLFSENSING.COM](http://WWW.GRAYWOLFSENSING.COM)

## GRAYWOLF SENSING SOLUTIONS

ANNACOTTY INDUSTRIAL PARK, UNIT 1C  
ANNACOTTY, COUNTY LIMERICK  
IRELAND V94 PR2Y  
PH. (353) 61358044