CPS®

IAQPRO SmartAir™
Professional Indoor Air Quality Meter

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CPS Link™

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Version 4.3
or higher

QUICK START AND TROUBLESHOOTING GUIDE
(English)

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CPS® Link ™ Wireless Technology
Patent # 9,043,161

Bluetooth® **FC** **CE** **ICES-003**

CONTENTS

GENERAL SAFETY & STORAGE INSTRUCTIONS

Please read, follow and understand the contents of this entire manual, with special attention given to warning statements.

FOR USE BY PROFESSIONAL OPERATORS ONLY.

> **WARNING:** The SmartAir is NOT a life-safety device and does NOT provide absolute values for all indoor airborne solids, liquids or gases that may be detected. It does NOT replace the capability of existing Smoke Alarms, Carbon Monoxide Alarms, Heat Detectors or any other dedicated life safety devices intended for use in residential or commercial environments.
>
> **The SmartAir does NOT provide audible alarms for CO2, VOC's, PM2.5, PM10, Relative Humidity, Temperature, Building Pressure or Dew Point.**

> **STORAGE NOTE**: THIS DEVICE IS A PRECISION INSTRUMENT AND IT IS STRONGLY RECOMMENDED TO ALWAYS STORE IT INSIDE UNDER NORMAL TEMPERATURE AND HUMIDITY CONDITIONS. **If the IAQPRO has been stored in temperature extremes, it must be placed indoors, unplugged in NORMAL TEMPERATURE AND HUMIDITY conditions for 6 to 8 hours before being powered ON.**

QUICK START INSTRUCTIONS

SETTING THE tVOC SENSOR BASELINE (Approximately 24 Hours, 5 Minutes Required)
- User must set the tVOC sensor baseline PRIOR TO INITIAL USE.
- Follow instructions below or connect unit to CPS Link App for online guidance.
- Unit does NOT need to be connected to app during the initial 24 hrs. time period (Step 1- 2).
- Unit must be connected to CPS Link app to complete Step 3.

Step 1: (24 Hours Required) Select a secure location **INDOORS**, plug unit into power source to turn ON and allow it to run for 24 consecutive hours. Light bar will initially turn RED, then alternate Green/Red during this time period.

Step 2: (5 Minutes Required) Relocate the unit to a secure, dry location **OUTDOORS** with access to power (do not locate in direct sunlight). It is OK to disconnect the unit from the INDOOR power source while relocating it to the OUTDOOR location. Power unit ON and wait for 5 mins.

Step 3: Open the CPS Link App on your smart device and select the IAQPRO icon to connect unit. Once connected, online guidance screens will appear prompting completion of Step 1 & 2 above. Swipe right to advance to the SET BASELINE screen. Touch the SET BASELINE option to save tVOC baseline and complete setup.

CONDUCT AN INDOOR AIR QUALITY TEST

The tVOC sensor requires a stabilization period when powered ON (the light bar will flash Green/Yellow during this process). The stabilization period can last between 5 to 60 minutes depending on the combination of storage conditions and time (minutes, days, weeks) the unit was powered OFF. Unit can be powered ON during travel between jobs to minimize jobsite stabilization time using available automobile USB power connections or other readily available portable power devices.

    a. For more accurate readings and to generate an Indoor Air Quality Test Report, start a 30-minute test (default setting).
- Choose the "TESTS" icon (upper right of screen), then.
- Choose the "Air Quality" option (lower left of screen).
- Choose a "Standard Test" (30 minutes) or "Custom Test".
- If "Standard Test" selected, touch "Start Test" button to begin. A new screen will appear, and the timer counts backwards from 30 minutes.
- To conduct a test shorter or longer than 30 minutes, select "Custom Test." Enter the desired test period (minimum of 5 min to a maximum of 23 hrs, 59 mins, 59 seconds), then press "Start Test".

    b. The light bar on the SmartAir housing will display a color indicating the range (see chart at right) within which the highest reading for ONE of these values ($PM_{2.5}$, PM_{10}, tVOC or CO_2) is found. Note: If the SmarAir is paired to your mobile device with the CPS Link app, it will emit a a short blue flash once every 5 seconds.

GREEN	Good
YELLOW	Satisfactory
DARK YELLOW	Moderate
ORANGE	Poor
RED	Severe

    c. For more detailed information about any item being measured, see the Information Section in the app.

    d. Users are encouraged to pair the SmartAir to a mobile device using the CPS Link app for more detailed information about the quality of indoor air.
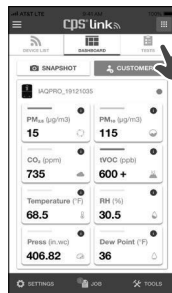
CREATING A CUSTOMIZED REPORT AND JOB PROPOSAL

The SmartAir is a compact, professional, Indoor Air Quality monitor used for measuring various aspects of indoor air (temperature, static pressure, dew point, relative humidity, volatile organic compounds, carbon dioxide, and particulate matter $PM_{2.5}$ and PM_{10}). After placement on an interior residential surface, detailed air quality data can be obtained by pairing this meter to a mobile device running the CPS Link app. The app will summarize air quality conditions and send a homeowner a friendly report with recommended solutions (if problems found). Technicians may enter repair costs into the report by using their paired smart device.

Technicians may then review this report on screen, print or email the report as a PDF. The SmartAir is great for documenting the quality of indoor air and recommending additional products or services that technicians can provide to resolve indoor air quality problems.
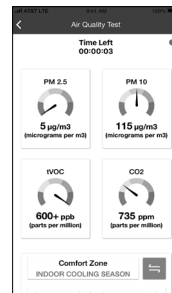
    a. **Generating a Customizable Report and Proposal** - After running an indoor air quality test choose "View Results" at the bottom of the dashboard.

    b. A screen will appear showing the "Air Quality Issues." Choose "Continue" at the bottom. This will take you to the "Causes and Solutions" screen.

    c. A screen will appear showing the "Causes and Solutions." Here you can fill in your information (Contractor Information) if you have not already done so in the "Profile" section found under the Main Menu.

    d. Next you can either select a customer or enter a new customer's information by choosing the "Select Customer" button. (Customers can be entered under the Main Menu / Tools / My Customers. To enter a new customer, select "ADD NEW" in the bottom right corner).

    e. **Add Custom Causes and Solutions** – By choosing the ⊕ icon next to a cause or solution you can add in custom causes and solutions not included in CPS Link.

    f. **Enter Service Prices** – You can choose a solution by clicking the circle next to that solution which will add a ✓ icon next to that solution and enable you to enter a price for that product and/or service.

    g. **Saving & Sending A Proposal** - Once you have entered pricing information, choose "Continue" located at the bottom. This will bring up your proposal. At the bottom of the proposal you can choose to email or view the proposal. You also have the option to choose "Done" which will save the proposal to your "Job" folder under the main menu so you can view or send it at a later date.
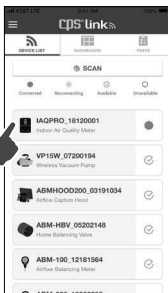
Device Selection Screen *(Step 3)*	Dashboard Screen (Starting An Air Quality Test)	Air Quality Tests In Process

Indoor Air Quality Issues	Potential Causes	Recommended Solutions	Recommended Indoor Levels
Hot or Cold Temperatures in Rooms	Unbalanced HVAC System	Install Home Balancing Kit in all supply grilles	The World Health Organization recommends 64 °F (18 °C)
	Building Envelope Excessive Leaking	Perform blower door test	
		Perform leak inspection of all potential leak sources (windows, doors, chimney, wall insulation)	
	Missing or Damaged Insulation	Perform thermal imaging inspection to determine sources of insufficient insulation	
High Humidity Level	Return and/or Supply Duct Leaks	Perform leak inspection and repair all leaks in ductwork	OSHA recommends 20–60% relative humidity.
	Oversized AC Unit/Short Cycling	Calculate appropriate equipment size and adjust accordingly	
	Building Envelope Excessive Leaking	Perform blower door test	
		Perform leak inspection of all potential leak sources (windows, doors, chimney, walls insulation)	
High PM$_{2.5}$ (0-2.5 microns)	Dirty Ductwork	Clean and sanitize ducts	US EPA recommends an average <12 μg/m3 or less per day over duration of 1 year.
		Add whole home UV/anti-bacterial system	
	Organic Growth on Coils/in Air Handler	Clean and sanitize cooling coils, condensate drain pan/lines and interior of air handler cabinet	
		Add UV light and antimicrobial tabs to condensate drain pan	
	Return Duct Leaks, Contaminate Infiltration	Perform leak inspection and repair all leaks in ductwork	
	Dirty Supply Grilles	Clean supply grilles	
High PM$_{10.0}$ (2.5-10.0 microns)	Poor Filtration	Add return filters with MERV rating (≥ 12)	US EPA 24-hour standard <65 μg/m3 based on the 3-year average of the annual 98th percentile concentrations.
		Add local HEPA filtration to remove particles > 3 microns	
High tVOC Level	VOC Contaminants	Remove contaminants inside home or garage	No federally enforceable limits, but 50 ~ 325 ppb are thought to be acceptable, but recommended to not exceed 500 ppb.
	The U.S. EPA reports that on average, 60% of VOC's enter the home through an attached garage	Improve ventilation inside home or garage	
		Add garage ventilation fan to exhaust/create negative pressure	
		Seal garage/mud door from home	
	Mechanical equipment issues	Inspect gas appliances and heaters for leaks	
High CO$_2$ Level	Insufficient returns	Add or increase size of return registers in bedrooms	350-1,000 ppm is typical level in occupied spaces with good air exchange.
	Inadequate ventilation	Add ERV (Energy Recovery Ventilation) or HRV (Heat Recovery Ventilation) to exchange stale air with fresh air	
High Or Low Building Pressure	Negative air pressure in summer	Inspect windows, doors or other openings in the building envelope for air leaks	Slightly positive +.02-in. to +.03-in.WC. can make a huge difference in building comfort and efficiency.
	Negative air pressure in winter		
	Positive air pressure in summer		
	Positive air pressure in winter		

Indoor Air Quality Issues	Potential Causes	Recommended Solutions	Recommended Indoor Levels
High Or Low Dew Point	In the summer, condensation forms on ducts, air diffusers, walls or ceilings	Ensure AC system is proper size (tons) and functioning properly. Check ductwork or building envelope for leaks. Determine if insulation missing	OSHA recommends 24 to 60 °F (−4.5 to 15.5 °C)
	In the winter, condensation forms inside exterior walls		

TROUBLESHOOTING GUIDE

Problem	Possible Solution
Light Bar	
Light bar doesn't turn on	Ensure power cord plugged into wall outlet that is receiving power.
What do light bar colors indicate?	See label on back of SmartAir housing for color explanations (or see # 3b in Quick Start Instructions above)
	Flashing Red- SmartAir is in start up mode.
	Alternating Green/Red- SmartAir sensor baseline not set up. See "Set tVOC Sensor Baseline" instructions.
	Alternating Green/Yellow- Wait 5 to 60 minutes for tVOC sensor to warm up.
	Blue flash (once every 5 seconds): SmartAir is paired to your mobile device with the CPS Link app.
CPS Link App	
CPS Link App crashes	Ensure mobile device is Bluetooth compatible, and Bluetooth setting ON in mobile device
	Delete the CPS Link app from your mobile device. Then reinstall the latest CPS Link app (from App Store or Google Play) on your mobile device
Can't pair phone or tablet to SmartAir	From App Store or Google Play, download the latest CPS Link app on your mobile device and pair it to the SmartAir.
	Mobile device must be ≤ 150 ft (46m) from CPS SmartAir
	Reset SmartAir by unplugging and plug in. Then pair to mobile device
Remote Operation	
Can't connect with mobile device	Mobile device must be ≤ 100 ft (30m) from SmartAir (direct line of sight)
	Charge mobile device battery
Low Or High Temperature Or Humidity Readings	If SmartAir has been stored in temperature extremes, it must be placed indoors, inplugged in NORMAL TEMPERATURE AND HUMIDITY conditions for 6~8 hours before being powered ON.

Connection Status	
How do I know when the SmartAir is paired to my mobile device?	A blue dot is visible in the upper right corner of the Performance Screen or Test Screen
	The LED light bar will flash blue about once every 5 seconds
VOC sensor doesn't seem to provide accurate readings	User must set tVOC Sensor Baseline PRIOR TO INITIAL USE (See Quick Start Instruction Guide)
	If the SmartAir is turned OFF after conducting tests at various locations on a jobsite, the VOC sensor will need to warmup each time after being powered OFF. The warmup period may last 5 to 60 minutes (depending on the amount of time the SmartAir was turned off). See Quick Start Guide or Owner's Manual for detailed instructions.

APPENDIX

SmartAir Sensor Specifications					
Air Quality Factor	Measurement	Accuracy	Minimum Time To Acquire Accurate Data*	Values Displayed In App	
				Minimum	Maximum
Temperature	Temperature	±2.3 ºF (±1.3 ºC)	Immediate	32F (0C)	122F (50C)
Pressure	Building Pressure	±0.100 in.WC (±0.25 hPa)		120 in. WC (300 hPa)	441 in. WC (1100 hPa)
DP	Dew Point Temperature	±2.3º F (± 1.3 ºC) ± 5% Of Reading		32F (0C)	122F (50C)
rH	Relative Humidity	±5% of Reading		10%	95%
Indoor Comfort Zone (Heating/Cooling Season)	Temperature & Humidity	+/- 2.3F (+/- 1.3C), +/-5% of Reading		61F (16C) & 10% r.H.	93F (34C) & 95% r.H.
tVOC's	Total Volatile Organic Compounds	±(50 ppb + 15%)	5 Minutes To 60 Minutes	0 ppb	5,000 ppb**
CO_2	Carbon Dioxide	± (100 ppm +3% Of Reading)	3 Minutes	0 ppm	5,000 ppm
PM2.5	Fine Particulate Matter	± 25ug/m3 for < 100 ug/m3; ±25% for > 100ug/m3	Immediate	0 ug	400 ug
PM10	Particulate Matter			0 ug	600 ug

*After being powered ON. If stored in temperature extremes, let SmartAir adjust (unplugged) to indoor temperature for 6~8 hours.
**Accuracy spec applies up to 600 ppb. See Quick Start Guide or Owner's Manual for additional use instructions.*

Product Specifications	
Wireless Transmission Range	Up to 150 ft (46 m) Direct line of sight
Size/Weight	5"H (12.7cm), 3.5" (9cm) Dia., [0.65 Lb (0.3 kg)]
Power Cord (USB-C Cable)	6.6 Ft. (2 m)
AC/DC Adapter Plug	**Input:** 100~240V; 50~60Hz; 0.4A **Output:** DC 5V; 2.0A Conforms to UL STD 62368-1 Certified to CSA STD C22.2 No. 62368-1
Protective Carrying Case	EVA semi-rigid shell, with internal compartments
Agency Approvals	**FCC** (Tested and found to be compliant with FCC 47 CFR Part 15B: 2017, ISED ICES-003: Issue 06 (2016).
CE Approvals	**EMC** (Electromagnetic Compatability Emissions) EN: EN 61326-1 2013 Basic Level **I** EN 55011: 2009/A1:2010 **I** EN 61000-3-2:2014 **I** EN 61000-3-3:2013 **I** EN 301 489-1 V2.1.1(2017-02) **I** EN 301 489-17 V3.1.1(2017-02)
Warranty	1 year
Geotag Feature	Time, Date, Location

LOCATIONS

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