Test Indoor Air Quality with AEMC® Model 1510

Assists with COVID 19 Prevention

Quality of Ambient Air and Risk of Infection

Numerous scientific studies have proven that aerosols are a major route of transmission of viruses such as COVID-19 and SARS-CoV2. Active virus particles can float in the air longer and further than originally thought and pose a potential danger.

Problem Definition:

- Is compliance with the indoor distance rules sufficient?
- Which measures are recommended?
- Which measuring devices are available to help identify and reduce the risk of infection?

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COVID-19 Detected in Aerosols

Although many questions about the possible transmission of the Virus SARS-CoV2 remain unresolved, aerosols are recognized as one of the transmission vectors at the beginning of July.

Various scientific studies have now proven that a person infected with SARS-CoV2 can emit numerous viral aerosols not only when sneezing and coughing, but also when speaking and even when exhaling.

While larger droplets sink quickly at a small distance from the ground, aerosols can float in the air over larger distances of up to almost 16 feet and, possibly, float in the air and distribute the virus. This was confirmed by the researchers of the University of Florida led by John Lednicky. However, it is currently unclear how large the proportion of aerosols in the infections is.

The fact that even completely asymptomatically infected individuals can transmit the Virus in this way is worrying.

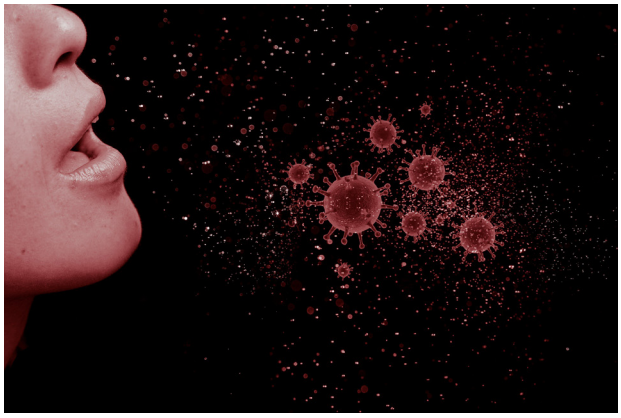
Are the distance rules sufficient?

In enclosed spaces, the risk of infection with the COVID-19 is generally much higher than outdoors, where SARS-CoV-2 particles are dispersed by the wind and can volatilize.

In publicly accessible premises such as schools, day care centers, offices, seminar rooms, workshops, transport, hospitals, etc., the 6ft distance control alone is not sufficient, according to the study mentioned above.

Airing is announced

A possible risk of infection via aerosols therefore exists predominantly in rooms which are not sufficiently ventilated or in which no air exchange is possible.



Coronavirus is airborne and transmitted through tiny droplets called aerosols that linger in the air much longer than the larger globs that come from coughing or sneezing especially in poorly ventilated indoor areas.

The Solution: Model 1510, the Indoor Air Quality Tester

Measuring the CO2 concentration with Model 1510 is a good indicator of the efficiency of room ventilation and thus of the reduction of the risk of infection.

When is fresh air necessary?

In various studies, researchers have analyzed the relationship between the concentration of CO2 and aerosols emitted during breathing.

According to Anna Hartmann and Martin Krieger of the Hermann Rietschel Institute of the Technical University of Berlin, the studies have shown that CO2 is a good indicator of the functionality of the ventilation systems: “with a high air exchange, both low CO2 concentrations and low aerosol concentrations can be achieved. The lower the aerosol concentration, the lower the dose of aerosols that a person in the room inhales and therefore the risk of infection.”

Model 1510, the optimal device for permanent monitoring of Aerosol concentration in closed rooms through a CO2 measurement

As already mentioned, an increased CO2 concentration in indoor spaces indicates a strong occupancy of the room and an insufficient supply of fresh air. For this reason, the CO2 concentration is an excellent indicator of air quality and a decisive indication of the need for air renewal.

The Model 1510 portable indoor air quality meter is easy and user-friendly to use and stores the measured parameters. It determines the air quality in rooms on the basis of the CO2 concentration alone or on the basis of the three measured physical quantities (CO2, relative humidity and temperature).

Features:

- Audible and visual alert of high CO_2 concentration
- Simultaneous monitoring and recording of CO_2, temperature and humidity values
- Storage of up to 1 million readings
- Compact and Autonomous – for stationary and mobile measurements
- USB power adapter for continuous measurements
- Display of indoor air quality level based on CO_2 content and humidity / air temperature
- On-Site Calibration Set

Correct Ventilation with Model 1510 Detectable

Thanks to the data logger function, it can be proven at any time, if necessary, that the dangerous concentration values have not been exceeded during the entire measurement period. This ensures that the premises have been properly ventilated.

Audible and visual warnings in case of limit value violations

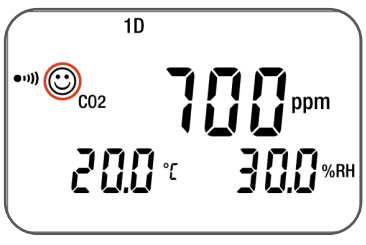
The device has an optical display (two-color display backlighting) and an audible warning when high concentrations of CO2 are present.

Example in 1D mode:

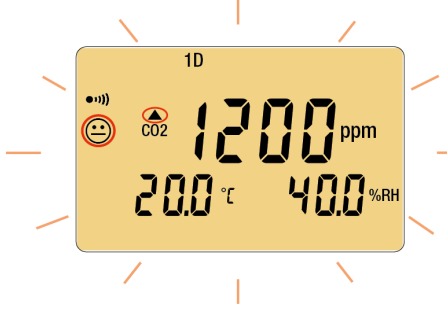
* from an average CO2 concentration of 1000 ppm, the indicator light flashes orange

* from peak values of 1700 ppm the indicator light flashes red and an acoustic signal sounds

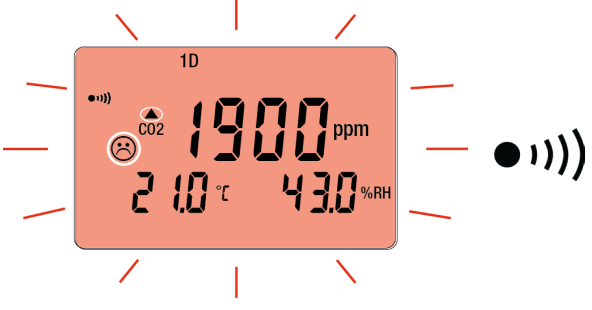
GOOD



WARNING



HIGH



Flexible Mounting Types

- Model 1510 Air Quality Logger is equipped with a magnet
- It can be attached to any metal surface without effort
- A lockable wall holster provides theft protection
- A tabletop stand for easy transportation to different locations

Lockable Wall Holster

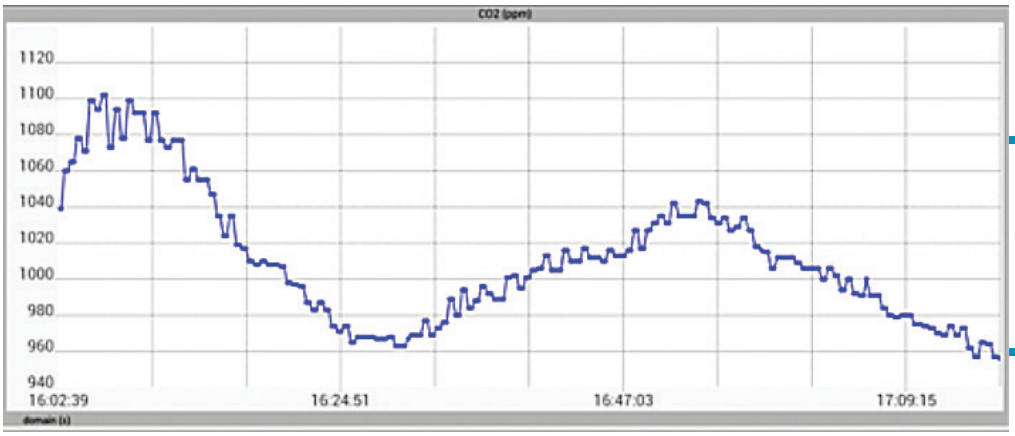
Magnetic Wall Mount

Desktop Stand

Communication and Protocol Options

Model 1510 indoor air quality tester can be connected to a PC via USB as well as wirelessly via Bluetooth. Software can be used to program the recordings, save the measured values as graphics or in Table form, export them to Excel and create reports.

An Android™ App is also available to display the data in real time on mobile devices.



Example of long-term recording of the CO2 concentration in a closed room.

Practice Tip: How to Ventilate Properly

As part of its study “Covid-19 prevention: CO2 measurement and demand-oriented measurement”, the environmental campus Bielefeld has determined, among other things, that the CO2 concentration in rooms can be reduced significantly faster during cross ventilation than during tilt window ventilation.

While aerosols are only slowly diluted during tilt window ventilation, a complete air exchange takes place during cross ventilation.

Cross-ventilation not only reduces the CO2 concentration more quickly, but also saves a lot of heating energy, as walls and furniture do not cool down.

Model 1510 Specifications

CO_2 Measurement	
Measuring Principle	Non-dispersive infrared (NDIR) technology
Type of Sensor	Double-beam infrared cell sensor
Measurement Range	0 to 5000 ppm
Accuracy (CO_2)	±50 ppm ±3% of value measured
Response Time, 63%	< 200 seconds
Resolution	1 ppm
Temperature Measurement	
Type of Sensor	CMOS
Units	°C or °F
Measurement Range	14° to 140°F (-10° to 60°C)
Accuracy	±0.1°F (±0.5°C)
Resolution	0.1°F (0.1°C)
Humidity Measurement	
Type of Sensor	Capacitive
Measurement Range	5 to 95% RH
Accuracy	±2% RH
Resolution	0.1% RH
General	
Recording Interval	Programmable from 1 minute to 2 hours
Storage	> 1 million measurements
Alarm	Yes
Backlighting Display, Hold, Min & Max	Yes
Auto Power OFF	Yes (in portable mode only)
Dimensions/Weight	4.92 x 2.58 x 1.26" (125 x 65.5 x 32mm)/ 6.7oz (190g) with batteries
Protection	IP40
Compliance	IEC 61010-1, 50V CAT II – IEC 61326-1
Power Supply	Alkaline batteries: 2 AA or rechargeable battery connection to 120V 60Hz line/USB to wall adapter
Communication	Bluetooth (Class I) wireless communication/USB link; the product is then recognized as a USB drive for easy file transfer
Mounting	Optional pad-lockable wall mount (padlock is not included), optional desktop stand and tear drop wall hook
DataView® Software	Graphic representation or as table of values, data export, real-time mode calculation of the confinement index with selection of presence periods & report generation

PRODUCT INCLUDES

- Meter in carrying pouch
- Adapter - US wall plug to USB
- 6ft USB cable
- (2) AA batteries
- Quick Start Guide
- User manual and DataView® application software included on USB thumb drive

ACCESSORIES/REPLACEMENTS

Catalog #2138.61
Wall Mount Holster (Gray)

Catalog #2138.62
Desktop Stand (White)

Catalog #2138.63
Calibration Kit

Catalog #2138.65
Replacement Carrying Case

Catalog #2138.66
Replacement 6 ft. USB cable

Catalog #2138.67
Wall Mount Holster (White)

Catalog #2117.73
Replacement Carrying Pouch

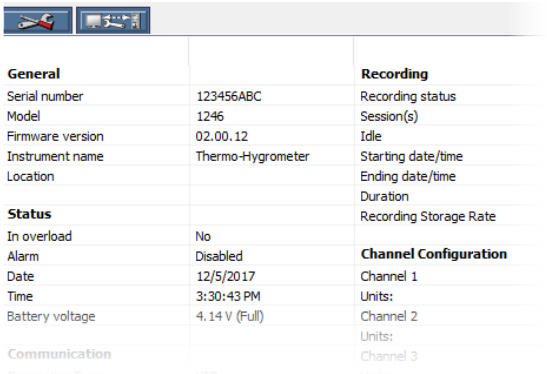
Catalog #2153.78
Adapter - US Wall Plug to USB

CATALOG NO.	DESCRIPTION
2138.08	Air Quality Logger Model 1510 (Gray) with NIST calibration
2138.09	Air Quality Logger Model 1510 (White) with NIST calibration

DataView®

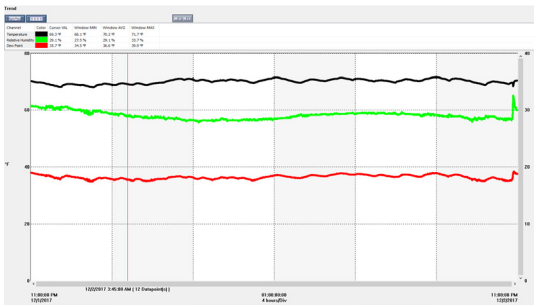
Data Analysis and Reporting Software

You can view measurements in real-time, download and analyze stored data, configure alarm set points and other user selectable parameters and create customizable reports all with our proprietary free DataView® software.

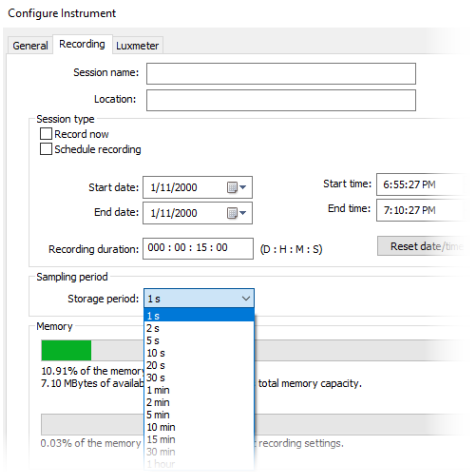


General		Recording
Serial number	123456ABC	Recording status
Model	1246	Session(s)
Firmware version	02.00.12	Idle
Instrument name	Thermo-Hygrometer	Starting date/time
Location		Ending date/time
		Duration
Status		Recording Storage Rate
In overload	No	
Alarm	Disabled	**Channel Configuration**
Date	12/5/2017	Channel 1
Time	3:30:43 PM	Units:
Battery voltage	4.14 V (Full)	Channel 2
		Units:
Communication		Channel 3

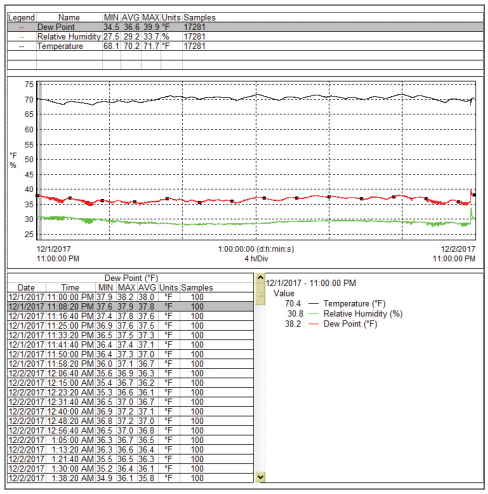
Typical status screen shows current state of the instrument



Typical graphic of recorded data displays recorded measurements vs. time as well as min, max, and average measurements for the recording. A movable cursor lets you see values at the cursor location



The recording configuration screen provides the ability to assign a name & location to the recording session, set the storage rate, and schedule when recordings will start and stop. It also displays memory usage.



Legend	Name	MIN	AVG	MAX	Units	Samples
--	Dew Point	34.5	36.6	39.9	°F	17281
--	Relative Humidity	27.5	29.2	33.7	%	17281
--	Temperature	68.1	70.2	71.7	°F	17281

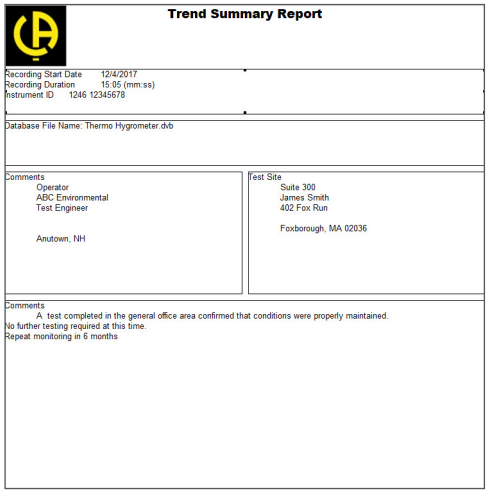
12/1/2017 11:00:00 PM — 1:00:00:00 (d:h:m:s) 4 h/Div — 12/2/2017 11:00:00 PM

Dew Point (°F)

Date	Time	MIN	AVG	MAX	Units	Samples
12/1/2017	11:00:00 PM	37.9	38.2	38.0	°F	100
12/1/2017	11:08:20 PM	37.6	37.9	37.8	°F	100
12/1/2017	11:16:40 PM	37.4	37.8	37.6	°F	100
12/1/2017	11:25:00 PM	36.9	37.6	37.5	°F	100
12/1/2017	11:33:20 PM	36.5	37.5	37.3	°F	100
12/1/2017	11:41:40 PM	36.4	37.4	37.1	°F	100
12/1/2017	11:50:00 PM	36.4	37.3	37.0	°F	100
12/1/2017	11:58:20 PM	36.0	37.1	36.7	°F	100
12/2/2017	12:06:40 AM	35.6	36.9	36.3	°F	100
12/2/2017	12:15:00 AM	35.4	36.7	36.2	°F	100
12/2/2017	12:23:20 AM	35.3	36.6	36.1	°F	100
12/2/2017	12:31:40 AM	36.5	37.0	36.7	°F	100
12/2/2017	12:40:00 AM	36.9	37.2	37.1	°F	100
12/2/2017	12:48:20 AM	36.8	37.2	37.0	°F	100
12/2/2017	12:56:40 AM	36.5	37.0	36.8	°F	100
12/2/2017	1:05:00 AM	36.3	36.7	36.5	°F	100
12/2/2017	1:13:20 AM	36.3	36.6	36.4	°F	100
12/2/2017	1:21:40 AM	36.5	36.8	36.3	°F	100
12/2/2017	1:30:00 AM	35.2	36.4	36.1	°F	100
12/2/2017	1:38:20 AM	34.9	36.1	35.8	°F	100

12/1/2017 - 11:00:00 PM
Value
70.4 — Temperature (°F)
30.8 — Relative Humidity (%)
38.2 — Dew Point (°F)

A typical report will include a plot of the data as well as a listing of the measurements.



Trend Summary Report

Recording Start Date 12/4/2017
Recording Duration 15:05 (mm:ss)
Instrument ID 1246 12345678

Database File Name: Thermo Hygrometer.dvb

Comments
Operator
ABC Environmental
Test Engineer

Anutown, NH

Test Site
Suite 300
James Smith
402 Fox Run

Foxborough, MA 02036

Comments
A test completed in the general office area confirmed that conditions were properly maintained.
No further testing required at this time.
Repeat monitoring in 6 months

A report cover sheet provides information about the operator and the test site as well as a comment section for the operator to type in the test results and recomendations

Indoor Air Quality Monitor Model 1510

Monitor CO_2, Temperature & Humidity for a Healthy Environment

- Display comfort indicators based on the CO_2 level along with temperature and humidity
- Display turns red and an audible tone is generated when CO_2 levels exceed 1000 ppm
- Stores greater than 1 million measurements
- Economy mode monitors and records during business hours only to conserve battery life
- Programmable
- Wireless communication
- Android® app available
- Supplied with DataView® software for data processing and report generation with automatic calculation of the confinement index

IP 40 Rated

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