DOCKETED

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Comments on CO2 displays in Classrooms

Additional submitted attachment is included below.

July 8, 2021

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Dear CEC Commissioners and Staff,

XCSpec appreciates the efforts by the California Energy Commission to establish the California Schools Healthy Air, Plumbing and Efficiency Program and the tireless efforts of Theresa Pistochini of the Western Cooling Efficiency Center to facilitate CO_2 monitoring into student classrooms. In addition, we appreciate the opportunity to provide the following feedback regarding the program guidelines.

As a California based business with a goal of improving commercial building air quality and ventilation through measurement and control, we would like to provide our perspective on the unique conditions we observe in school classrooms and student interest in their environment.

Since the monitors are in classrooms they should not be distracting to the goal of the teacher, which is to educate their students. AirWatch is a small esthetically pleasing all-in-one device with easy to read and understand green, amber, and red CO_2 parts per million (PPM) level indicators. The indicators are not visually intrusive to classroom occupants. Even during an alarmed condition, a RED indicator flashes only during unoccupied hours to notify maintenance personal but not distract students during occupied classroom sessions.

Understanding air movement and ventilation within the classroom while occupied is also a priority for ventilation. AB841 incorporates an HVAC assessment for room pressure, but the AirWatch goes one step further and continuously measures classroom air pressure during occupied periods. A blue indicator on AirWatch displays air movement, positive or negative, based on room pressure relative to outside air pressure. Pressure coupled with daily high ppm values gives a clear day-over-day indication of the classroom air quality. Note this requires one outdoor mounted weather transmitter to be installed per building or site.

The CalSHAPE program also provides a unique path to help our teachers further engage and educate students on air quality and it's impact on health and the environment. With a unit in every classroom, teachers or students can scan the QR code on the front of the AirWatch which opens a mobile app allowing students to read current ppm readings for CO_2, the last 5 days high ppm readings and the room space pressure.

XCSpec is working with local high school students to add an info button to each screen allowing the mobile app to further educate students on "what" CO_2 is, "how" it is generated and the "impact" of various CO_2 levels on health, drowsiness and cognitive abilities. This same high school has asked XCSpec to incorporate smoke particle detection inside and outside of the classroom – illustrating their comprehensive interest and willingness to understand air quality.

Once measurements are known, there is often a call for action to improve conditions. AirWatch supports Demand Control Ventilation through wired control of input air damper actuators or economizers, allowing improvements to the air quality without further capital expense.

XCSpec agrees with and wants to actively participate in clean healthy air in our classrooms. The proliferation of measurement and control devices will help achieve this objective. There are many classrooms in California therefore the impact of a deployment of this scale is very price sensitive. After discussion with HVAC installers, the ease of installation of the AirWatch and it's price point allow this unit to fit well within the CalSHAPE program budget.

Please feel free to reach out if there are additional ways we can help support this program.

Best regards,

Jan Peterson
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AirWatch® Air Flow and CO2 Monitor with DCV Control

An Enhanced Ventilation and Air Quality Monitor for schools and offices

SEE THE FRESHNESS OF YOUR AIR

AirWatch® by XCSpec is an innovative platform designed to support the re-opening of classrooms and offices. **AirWatch®** continuously monitors CO2 levels and pressure in any room, and presents this air quality information in an easy to understand and view manner. Per California CEC guidance for school reopenings after COVID, monitoring for positive pressure and CO2 parts per million count provides a direct indication of ventilation quality in the space. The **AirWatch®** Display includes Title 24 compliant controls for Demand Control Ventilation (DCV).

- Low cost and easy to install, Title 24 compliant
- Designed to meet AB 841 requirements
- Records last 5 day highest PPM
- Color LED visual indicators for CO2 levels
- Blue LED indicator for air flow ventilation
- App shows Display CO2 levels and educational information
- User friendly Wi-Fi interface to set up CO2 level alerts
- 0-10V output for DCV control of air dampers/economizers
- Upgrade to AirWatch® Pro for additional ventilation controls
- Cloud based 24/7 monitoring available

Contact sales@xcspec.com

XCSPEC® CONTROLS

AirWatch® Components

The AirWatch® solution is comprised of room mounted Displays that monitors and displays CO_2 levels, and a pressure Transmitter that mounts in an outdoor location. Both Displays and Transmitters measure pressure and the difference between the two drive the blue airflow LED on the Displays. Multiple Displays can be used with a single Transmitter.

AirWatch® App

- Bar code activated smartphone App displays real-time CO_2 data on easy to read graph
- Displays real-time room pressure and high CO_2 levels from previous 5 days per CA Title 24
- Includes educational information on CO_2 so users can understand what it is, and it's real-world impact

AirWatch® Display

Features:

- Simple at-a-glance CO_2 detector and airflow/ventilation display
- CO_2 Accuracy: 30 PPM +/- 3%, exceeds Title 24 accuracy standard
- Mobile device configuration to Transmitters, Wi-Fi networks, or the cloud
- CO_2 display level settings preconfigured to Title 24 or user selectable
- 0-10V or 2-10V output terminal for DCV control wire.
- CO_2 LEDs: Green, Amber, and Red indicators based on CO_2 levels
- Air Flow LED: Blue shows positive Fresh Air flow based on pressure differential
- Network LED: Green shows connection to a Transmitter or to the Cloud

Specifications:

- 24 Vac/dc Class 2 wiring
- Dimensions W x H x D: 3.125" x 3.125" x 1.0652"
- Operating Range: -20 to +85 o C
- Measurement /Set Point Range: 0 ppm to 10,000 ppm NDIR CO_2 sensor

AirWatch® Transmitter

Features:

- Ambient pressure sensor pairs with AirWatch Display
- Mounts in a location external to the Display
- Mobile device configuration to Displays, Wi-Fi networks, or the cloud

Specifications:

- 24 Vac/dc Class 2 wiring
- Dimensions W x H x D: 3.125" x 3.125" x 1.0652"
- Operating Range: -20 to +85 o C

Certifications for Transmitter and Receiver:

- Communications: IEEE 802.11b, g, n UDP, TCP
- FCC Certification: FCC CFR 47 Part 15 Subpart B
- FCC License: Contains TLZ-CU300 IC: 6100A-CU300

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XCSPEC CONTROLS
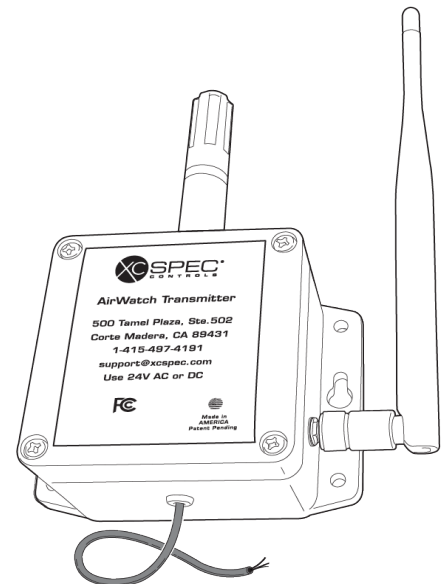
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