

Return to school safely

Monitoring CO₂
levels can help
curb the spread
of Coronavirus



Resuming face-to-face lessons necessarily requires the application of additional contagion containment measures, also due to the spread of the delta variant.

A study recently published in *Environmental Research*, a prestigious industry journal, has shown that the presence of a CO₂ concentration detector within the classrooms is able to promptly alert the teacher of the need to ventilate the classroom. The carbon dioxide that accumulates in all closed environments is the result of the breathing of the people who occupy them, in this case the pupils.

Periodic aeration allows to reduce carbon dioxide levels down to values below 700ppm, a threshold which, according to a model developed in 2020, would be able to guarantee a low level of risk of transmissibility of SARS-CoV-2.

Same authors have drawn up a diagram that indicates which actions to take depending on the CO₂ levels measured: for values below 700ppm it is not necessary to intervene, while for higher levels it is necessary to act by first opening the doors, then the windows only during the interval or when high levels of CO₂ persist, ventilate the room for up to 10 minutes every hour; for levels above 800ppm it may be necessary to reduce the number of students present in the classroom or even the implementation of structural changes to the building.



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According to the scientific coordinator of the research, Gianluigi De Gennaro, implementing simple actions with immediate feedback can effectively allow decision makers to optimize investments.

Many schools already use temperature and humidity monitoring tools in their premises and meters/recorders are coming onto the market that also store other strategic parameters, such as the concentration of CO₂ in the air.

The SIMA Vice President, the epidemiologist Prisco Piscitelli, advocates the extension of this monitoring measure to all closed and crowded environments to ensure greater safety from a health point of view.

Walter Ricciardi himself, who was the head of the Italian Superior Health Institute until 2018, now scientific advisor to the Minister of Health, recently suggested equipping every classroom with a CO₂ detector, arguing that air saturation corresponds at an increased risk of becoming infected with SARS-CoV-2, since the coronavirus is also transmitted by aerosols.

Capetti Elettronica has created the **WSD00TH2CO_S**, a datalogger capable of simultaneously measuring the ambient temperature, relative humidity and the concentration of carbon dioxide present in the room in which it is installed. Since this is a product developed already in 2020, it is present in numerous school buildings and has some characteristics of great importance, in order to facilitate its rapid spread:

- it is wireless, so it can be installed anywhere in the classroom;
- has two settable exceeding thresholds (*for example a warning over 700ppm and an alarm over 800ppm*);
- has a high intensity light indicator (*with the purpose, very useful as scientifically proven, to immediately and visually alert those in charge of airing the room*);
- has a relay output that switches when the alarm is activated, which can be connected, for example, to the forced ventilation of the classroom;
- has an internal self-calibration that allows you to avoid measurement drift in the absence of weekly maintenance;
- constantly records data according to the sampling frequency set even in the event of a blackout, to have the ability to analyse the air quality "minute by minute" even remotely (*via secure access to the **Service Center***).



Full features are available at:

<http://www.capetti.it/index.php/ecommerce/articolo/470>

Yes, to the resumption of face-to-face lessons. Yes, to the resumption of lessons in complete safety.

Bibliography

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