CLAIMS:

1. A gas concentration monitoring system comprising:

a radiation source comprising one or more emitting elements configured to emit radiation at different wavelengths;

a radiation sensor comprising a plurality of sensing elements configured to detect radiation received at the radiation sensor from the radiation source;

a reactive material located between the radiation source and the radiation sensor and configured to react to the presence of a gas, wherein the reaction of the reactive material impacts an amount of radiation detected at the radiation sensor,

characterized in that the plurality of sensing elements are arranged as an array, wherein the sensing elements are arranged in parallel to detect the different wavelengths as emitted by the radiation source,

an analog-to-digital converter operably connected to the radiation sensor, the analog-to-digital converter configured to sum and convert a signal received at the radiation sensor; and

an enclosure having one or more vents configured to permit ambient air to enter the enclosure, the enclosure configured to house the radiation source, the radiation sensor, and the reactive material.

2. The monitoring system of any of the preceding claims, wherein the reactive material is a carbon dioxide color-sensitive film.

3. The monitoring system of any of the preceding claims, wherein the radiation source comprises one or more LEDs.

4. The monitoring system of any of the preceding claims, wherein the impact on the amount of radiation detected at the radiation sensor is one of (i) decreasing the amount of radiation that is received at the radiation sensor and (ii) increasing the amount of radiation that is received at the radiation sensor.

5. The monitoring system of any of the preceding claims, further comprising a control circuit configured to at least one of (i) control the radiation source and (ii) receive information from the radiation sensor.

6. The monitoring system of any of the preceding claims, further comprising a data logger configured to at least one of (i) record data associated with the amount of radiation received at the radiation sensor and (ii) determine if an amount of radiation received at the radiation sensor is either above or below a threshold.

7. The monitoring system of any of the preceding claims, wherein the gas is carbon dioxide.

8. A gas concentration monitoring system comprising:

a data logger;

a radiation source comprising one or more emitting elements configured to emit radiation at different wavelengths;

a radiation sensor comprising a plurality of sensing elements configured to detect radiation received at the radiation sensor from the radiation source, the plurality of sensing elements arranged as an array, wherein the sensing elements are arranged in parallel to detect the different wavelengths as emitted by the radiation source; and

a reactive material located between the radiation source and the radiation sensor and configured to react to the presence of a gas, wherein the reaction of the reactive material impacts an amount of radiation detected at the radiation sensor,

an analog-to-digital converter operably connected to the radiation sensor, the analog-to-digital converter configured to sum and convert a signal received at the radiation sensor; and

an enclosure having one or more vents configured to permit ambient air to enter the enclosure, the enclosure configured to house the radiation source, the radiation sensor, and the reactive material,

wherein the radiation sensor is in communication with the data logger, and the data logger is configured to at least one of (i) record data associated with the amount of radiation received at the radiation sensor and (ii) determine if an amount of radiation received at the radiation sensor is either above or below a threshold.

9. The monitoring system of claim 8, wherein the reactive material is a carbon dioxide color-sensitive film.

10. The monitoring system of any of claims 8-9, wherein the radiation source comprises one or more LEDs.

11. The monitoring system of any of claims 8-10, wherein the impact on the amount of radiation detected at the radiation sensor is one of (i) decreasing the amount of radiation that is received at the radiation sensor and (ii) increasing the amount of radiation that is received at the radiation sensor.

12. The monitoring system of any of claims 8-11, further comprising a control circuit configured to at least one of (i) control the radiation source and (ii) receive information from the radiation sensor.

13. The monitoring system of any of claims 9-12, wherein the gas is carbon dioxide.

14. A method of monitoring a concentration of gas within an enclosure, the method comprising:

controlling a radiation source to transmit radiation at different wavelengths;

passing the transmitted radiation through a reactive material;

detecting the amount of radiation that passes through the reactive material with a plurality of sensing elements that are arranged as an array, wherein the sensing elements are arranged in parallel to detect the different wavelengths as emitted by the radiation source;

summing and converting the detected amount of radiation received at the arrange of sensing elements, and

determining a concentration of a gas based on the amount of radiation detected at the different wavelengths,

wherein the reactive material is configured to react to the presence of the gas, wherein the reaction of the reactive material impacts the amount of radiation at different wavelengths that passes through the reactive material.

15. The method of claim 14, further comprising passing ambient air over the reactive material.

16. The method of any of claims 14-15, wherein the gas is carbon dioxide.

17. The method of any of claims 14-16, wherein the radiation is at least one of visible light, ultraviolet radiation, and infrared radiation.

18. The method of any of claims 14-17, further comprising logging the determined concentration of gas with a data logger.