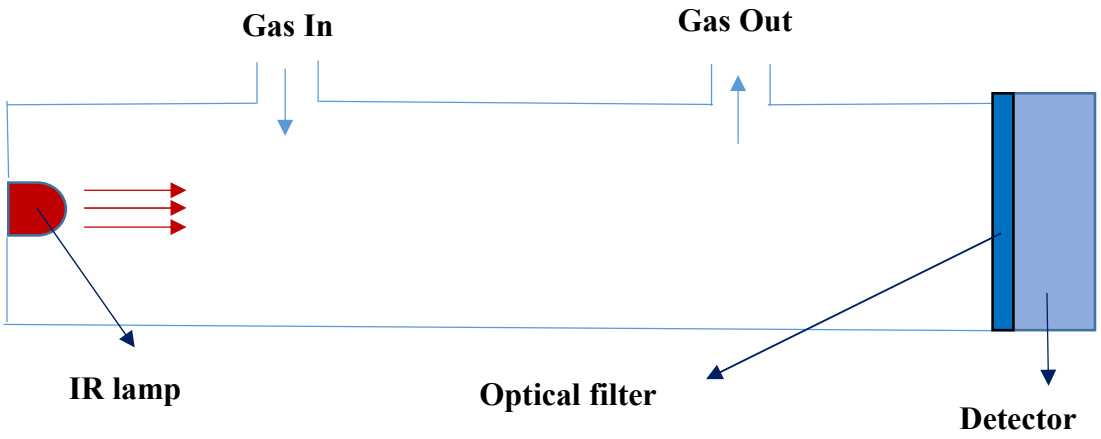
ECEFastNZLtd®

How Does an NDIR CO2 Sensor Work?

In the industry, many of us use the term "NDIR CO2 sensor", this information is about how NDIR sensors actually work. NDIR is an industry term for "nondispersive infrared", and is the most common type of sensor used to measure CO2.



The gas is pumped or diffuses into the sample chamber and gas concentration is measured electro-optically by its absorption of a specific wavelength in the infrared (IR).
An infrared (IR) lamp directs waves of light through a tube filled with air toward an IR light detector, which measures the amount of IR light that hits it. As the light passes through the tube, any gas molecules that are the same size as the wavelength of the IR light absorb the IR light only, while letting other wavelengths of light pass through.
Next, the remaining light hits an optical filter that absorbs every wavelength of light except the exact wavelength absorbed by CO2.
Finally, an IR detector reads the amount of light that was not absorbed by the CO2 molecules or the optical filter.
The difference between the amount of light radiated by the IR lamp and the amount of IR light received by the detector is measured. The difference is proportional to the number of CO2 molecules in the air inside the tube. Of course, this is a very simplified explanation

Lutron CO2 meter MCH-383SD uses this technology to mark a step forward into the field of precision measurement.

Applications for NDIR Gas Sensors: Indoor air quality, cycle regulation in self-cleaning ovens, automotive and flue gas emissions, greenhouse farming, hazardous area warning signals, gas leak detection, landfill gas monitoring, alcohol breathalysers, patient monitoring for anaesthesiology

Important notes on **MCH-383SD**:
The meter's supply is from 9V DC power adapter. (supplied with the kit). So 240VAC power supply is very much required.
The 6pcs x UM4, AAA batteries are for the clock time base backup.
The accuracy of the CO2 measurement is ± 40 ppm in the 0-1000 ppm range

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The meter can create maximum 10 folders. Each folder can have 99 files. Each file can have 30,000 data. 30,000 data will occupy a space of approximately 2.7MB in the SD card.
The maximum data of 2, 97,00,000 {30,000 data x 99 files x 10 folders} will need a capacity of 2.9 GB {2.7MB x 99 x 10}. So, the customer needs 3~4GB if he wants to use the full logging capacity {All the folders and all the files}

Facts about CO2

Scientists and climate experts believe 350 ppm of carbon dioxide in the atmosphere is considered "safe" level. 350 "parts per million," is simply a way of measuring the ratio of carbon dioxide molecules to all of the other molecules in the atmosphere.

What is the safe level of CO2 in the indoor spaces?

Typical occupied indoor spaces with good air exchange	: 350 to 1000ppm
Complaints of drowsiness and sickness	: 1,000-2,000ppm

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