

$$u_{PID}(t) = k_p e(t) + k_i \int e(t) dt + k_d \frac{d}{dt} e(t)$$

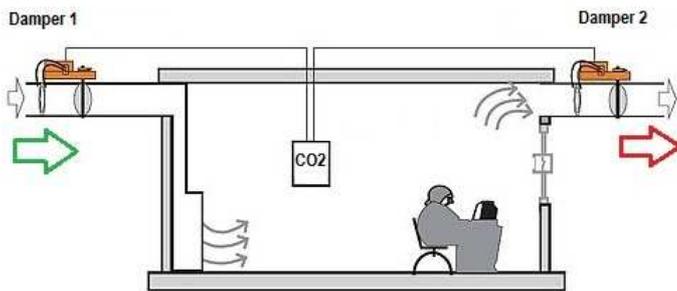


Fig1. Example of use of the CO2 sensor and PID controller: analogue control for 2 dampers (intake-extract). On this case, the ppm set point reference concentration is the same for both outputs.

This CO2 sensor not only measures the gas concentration, also due to the implementation of a PID algorithm can give a signal proportional to control the airflow of a fan, damper or an HRV.

This sensor combines the functions of a sensor and a controller at the same time being able to maintain optimal air quality through the jumper configuration of the indoor air quality reference or setpoint with the desired concentration in the room. This allowed maintaining air quality depending on the occupancy of the room and thus saving energy to be able to regulate the speed of a fan or an opening damper.

Key features

- ⇒ It can be installed at **room level**
- ⇒ CO2 sensor + PID controller algorithm implemented on same device
- ⇒ **PID signal** with analogue and digital output (for on-off and proportional dampers)
- ⇒ No external or additional controller needed
- ⇒ Perfect solution for **DCV applications**
- ⇒ Low OPEX
- ⇒ Compliant with Demand-Controlled systems acc. EN15232 Class A

Application Areas

Schools, nurseries, retail shops, offices...

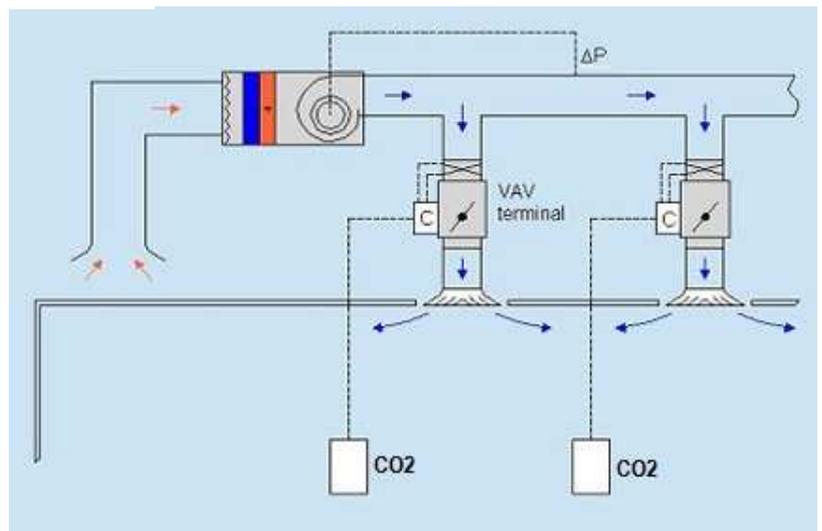


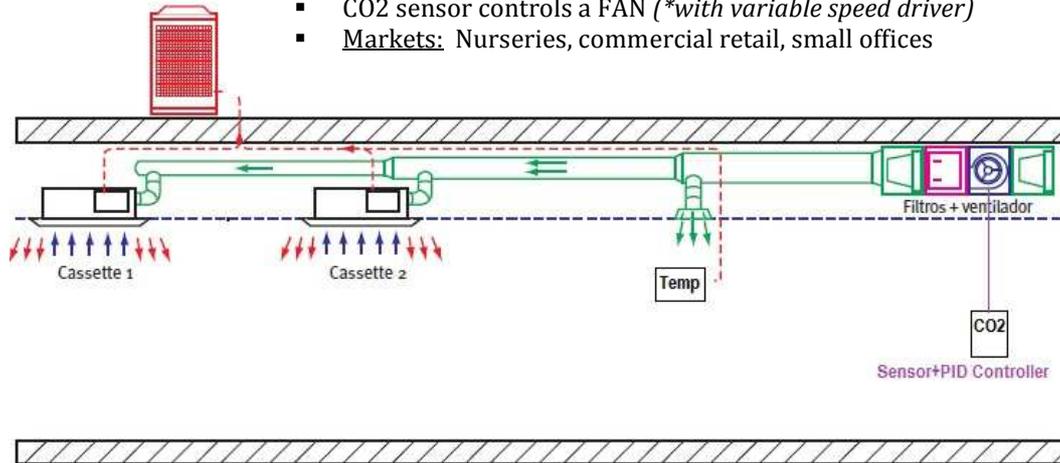
Fig2. Example of 2 different CO2 sensors + PID controllers using analogue control output for proportional dampers. CO2 sensor controls the air flow diffuser –indoor air-according with the setpoint configured on the CO2 sensors



Application Examples

Example 1. Demand Ventilation with FAN

- Indoor air quality control by CO2 gas sensors
- Category of Demand Ventilation IDA-C6 (EN13779) Control demand by occupancy
- CO2 sensor controls a FAN (*with variable speed driver)
- Markets: Nurseries, commercial retail, small offices



CO2 ppm level concentration will increase with the occupancy people in the room and the ventilation demand will adapted to this

Example 2. Demand Ventilation with HRV (when Volume flow rate is higher than 1800 m3/h*

*RD1027/2007 -RITE Spanish normative

- Configuration with DCV -indoor air quality control- by CO2 gas sensors
- Category IDA-C6 (EN13779) Control demand by occupancy
- CO2 sensor controls a HRV
- Markets: Schools, Hotels, commercial shops, warehouse, office buildings

