



NanoSense

123 rue de Bellevue, 92100 Boulogne Billancourt
France
Tél : 33-(0) 1 41 41 00 02, fax : 33-(0) 1 41 41 06 72

E4000 Air Quality Probe for low energy buildings



Certification KNX en cours



Gateway ou capteur

Use

This probe is designed to regulate the mechanical air renewal of buildings. It also controls the temperature through a self-adaptive fuzzy logic PID.

Energy losses by air renewal in a conventional building are estimated at 30% of the heating and air conditioning cost. These losses become predominant in hyper isolated buildings even with double flow ventilation. Increasing tightness of buildings also imposes controlled air renewal to ensure comfort and health.

By regulating according to the human presence materialized by the CO₂ exhalation (meeting rooms, offices) and air quality (VOC, formaldehyde, toxic or odorous compounds), energy savings can be tremendous.

The E4000 probe uses solid state and NDIR sensors that only require a replacement of the sensor module every 10 years. This technology allows extremely low operating costs.

Sober and discreet design of the probe allows easy integration in renovation and in new constructions.

The modular architecture allows the probe to interface with various standardized automation systems (KNX, LON, Modbus RS485, IP (POE), EnOcean ...).

A daughter interface board module also allows analogue output (dry contact, 0-10V).

The probe can also be configured for EnOcean.

Sensors standard assembly:

No optional sensor, this sensor is the most comprehensive on the market and combines the following measures:

- CO₂,
- VOC
- Humidity (absolute and relative)
- Temperature, felt temperature (depending on humidity).

Through its sensors set, this sensor is universal and can be installed in wet rooms, living rooms, workplaces and meeting rooms.

The probe is compatible with the next generation of sensor that will identify VOCs (VOC-IDS technology).

Gateway for annexe sensor and actuators



Peripheral elements

R485, KNX, LON or IP (POE)

EnOcean

E4000 Probe can be equipped with an optional EnOcean radio link (<http://www.enocean-alliance.org>) to integrate different devices such as:

- Switch (ON / OFF, UP / DOWN, position setting) for lighting, shutters, blinds ...
- Occupancy and brightness sensor (ceiling mount) for lighting management.
- Contact opening probe or handle for window or door.
- Room thermostat and settings (day, night, frost)
- Remote adjustment and control (lighting, shutters ...)
- Actuator for lighting, shutters, blinds ...



Telegrams received from any wireless EnOcean device are interpreted by the E4000, and data converted into KNX or LON or IP communication objects.

The technology is based on EnOcean Alliance wireless technology and energy harvesting solutions for wireless battery less and maintenance free sensor (mini solar cells). More than 300 companies are members of the EnOcean Alliance. Interoperability with different manufacturers of these products allows quick installation and low maintenance of peripheral devices (no batteries to change).

To avoid the use of repeaters and reduce installation constraints related to radio propagation from one room to another, it is recommended to implement one EnOcean gateway into each E4000 probe rather than a single gateway for several rooms. In addition, the commissioning via the KNX address for each E4000 probe will simplify the job. Therefore EnOcean sensors and actuators become easily identified by their KNX address.

RS485 Modbus master

- PM1, PM2.5 and PM10 Particles Mater annex probe
- Radon Probe Annex (Canadian Wells represent the common major radon source in most low consumption buildings)

The E4000 KNX database probe manages annex probes.

LON bus also allows managing annex probes through the E4000 probe.

EnOcean module transmits information of annex probes.