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E4000-NG Air Quality Probe for low energy buildings



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.

The energy consumption by air renewal becomes preponderant for well insulated modern buildings despite dual flow ventilation systems because the consumption of the motors is significant. The increasing airproofing of the buildings, also imposes a renewed air controlled 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-NG uses a single-band NDIR sensor (dual-band option) and metal oxide semiconductor VOC sensor that only require a sensor change every 10 years.

This probe fits easily in renovation as in new constructions.

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

A daughter interface board module also allows analogue output (dry contact, 0-10V) or a tricolour LED indicator .

The probe can also be configured as KNX or LON EnOcean gateway.

It can also perform EnOcean repeater.

A resident RS485 port connects peripheral probes (Radon, Ozone, particles)

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

EnOcean

E4000-NG 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-NG, and data converted into KNX or LON 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-NG probe rather than a single gateway for several rooms. In addition, the commissioning via the KNX address for each E4000-NG 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 Matter annex probe
- Radon Probe Annex (Canadian Wells represent the common major radon source in low energy consumption buildings)

The E4000-NG probe KNX and LON databases manages annex probes.

EnOcean module transmits information of annex probes.

Settable control algorithms for annex probes are integrated in the E4000-NG probe.