BELIMO®

Belimo IAQ Sensor
by NanoSense

IAQ room multi-sensor
- **13 indoor air component measures**
- **Ventilation system control (analogue or Belimo Modbus air damper and VAV)**
- **Threshold or physiological effect control algorithm**
- **Parameter setting, display of measurements and control via smartphone in NFC**
- **Host communication (depending on model): Enocean or LoRa**
- **Option : surface mounting**

Products

EP5000, the sensor for the health and productivity of occupants.

Controlling IAQ by measuring the level of CO2 in rooms is not sufficient to guarantee its quality. It is recognized, by most medical and university studies, that other physicochemical components (temperature, humidity, CO2, VOC, PM, noise, luminosity, etc.) of indoor air have a strong influence on cognitive capacity and health. occupants. Indeed, according to the measured values of these components, their interaction generates an effect called "cocktail effect" which degrades their cognitive capacities and their health. This result is a drop in productivity and absences due to various illnesses.

Belimo's EP5000 multi-sensor range is designed for the measurement of these components, their analysis using adapted algorithms and the determination of the ideal setpoint for the control of the ventilation system via dampers or VAV, improving thus IAQ.

All the commissioning is done digitally using an Androïd smartphone in NFC communication for the selection of the components to be monitored, the parameterization of the setpoints, the communication, etc., as well as the reading of the measured values and parameters.

EP5000 Range

The range includes the EP5000VP-N model for controlling actuators (VAV or register) in analogue and three others (EP5000MM-N, EP5000MML-N, EP5000MME-N) for controlling Belimo Modbus RTU actuators (VAV or register) the EP5000MMx-N being the Modbus master.

The advantage of these is the retrieval of data to the sensors, such as position, flow, faults and setpoint, as well as flow settings or Min / Max position, and override commands. On the other hand, they offer the advantage of easily accessing to the parameters of the actuators without removing the false ceilings.

The version with Enocean or LoRa wireless host communication allows, on the one hand, remote access to sensor measurements for BMS and the statistics on IAQ (Dashboard) required for certain building labels such as the Well V2 label. on the well-being and on the other hand the remote modification, the Min./Max values of the flow rate of the VAVs or of the position of the damper actuators.

The EP5000 range of multi-sensors, controlling the associated ventilation system via dampers or VAVs, meets the A01, A03 and A04 sections relating to the IAQ requirements of the Well V2 certification.
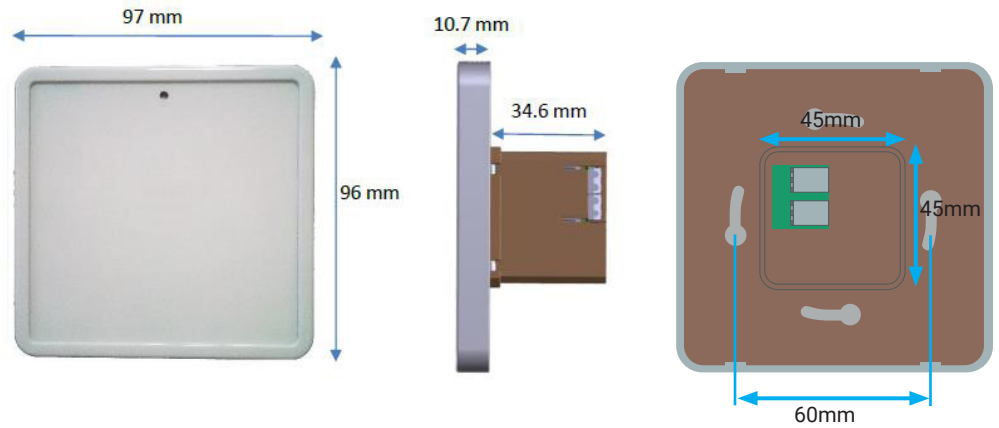
Characteristics EXT-NS-...

	EP5000MN	EP5000VP-N	EP5000MM-N	EP5000MME-N	EP5000MML-N
Sensors	Temperature, humidity, CO2, VOCs, PM1, PM2.5, PM10, sulfurous odors, air pressure, Lux, light temperature, peak and average noise, presence				
Type	Flush mounted (surface mounting option)				
Power supply	24 VCC (12 – 30 VCC) – 2-wire spring terminal				
Consumption	Average: 15 mA, peak: 40 mA, average power: 360 mW				
Proection index	IP30, Classe III				
Dimensions H x L x P	96 x 97 x 45,3 mm				
Weight	Approx. 120 g				
Standards	EN-60730-1 73/23 / CEE (Low power directive) 89/336 / CEE (EMC directive)				
Operating and storage conditions	Operating temperature range : 0°C … +45°C Operating humidity range : 0 … 95% without condensing Storage temperature range : -30°C … 60°C Storage humidity range : 0 … 95% without condensing				
Commissioning tool	NFC Android Smartphone				
Contrôle servomoteur	-	0-10V	Modbus RTU (up to 8 Belimo Modbus actuators))		
Actuator connection	2-wires spring terminal				
Modbus baudrates	-	-	9600, 19200, 38400, 76800		
Modbus format	-	-	1-8-N-1, 1-8-N-2, 1-8-O-1, 1-8-E-1		
Modbus address	-	-	1 … 33		

Feature summary EXT-NS-...

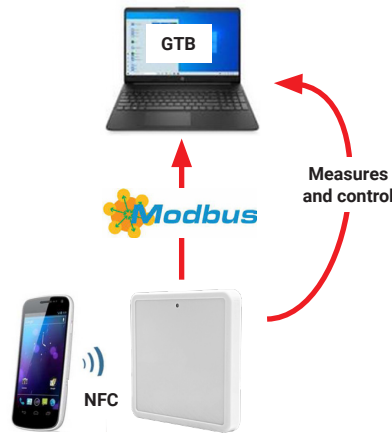|	EP5000MN	EP5000VP-N	EP5000MM-N	EP5000MME-N	EP5000MML-N
Analogue control	-	●	-	-	-
Belimo Modbus actuator	-	-	Master	Master	Master
Enocean host communication	-	-	-	●	-
LoRa host communication	-	-	-	-	●
Data access					
NFC commissioning	●	●	●	●	●
Measures reading in NFC	●	●	●	●	●
Measures reading in Modbus	●	-	-	-	-
Measures reading in Enocean	-	-	-	●	-
Measures reading in LoRa	-	-	-	-	●
Min/Max setting (Position/Flow)	-	-	●	●	●
Override	-	-	●	●	●
Actuator position	-	-	●	●	●
Flow (VAV only)	-	-	●	●	●
Actuator errors	-	-	●	●	●

Dimensions

97 mm
96 mm
10.7 mm
34.6 mm
45mm
45mm
60mm

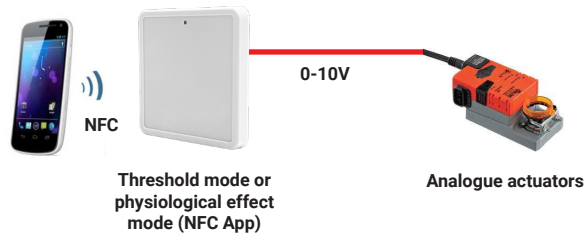## Types and operating process

EXT-NS-EP5000MN
IAQ Multi-sensor slave Modbus only

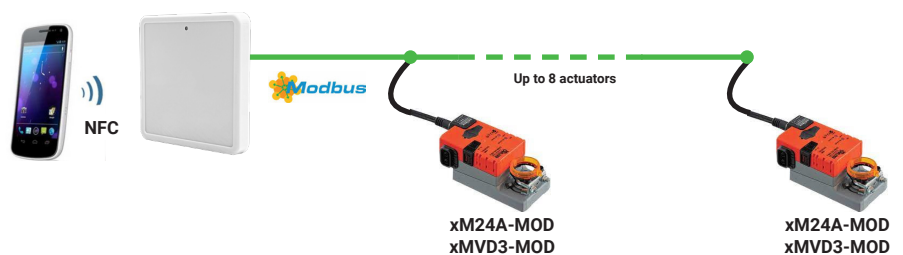Multi-sensor to be used only for Modbus RTU measurement feedback to the BMS or dashboard.

GTB

Measures and control

Modbus

NFC

EXT-NS-EP5000VP-N
IAQ Multi-sensor for analogue actuator

Multi-sensor with analogue fan control (0-10V)

NFC

0-10V

Threshold mode or physiological effect mode (NFC App)

Analogue actuators
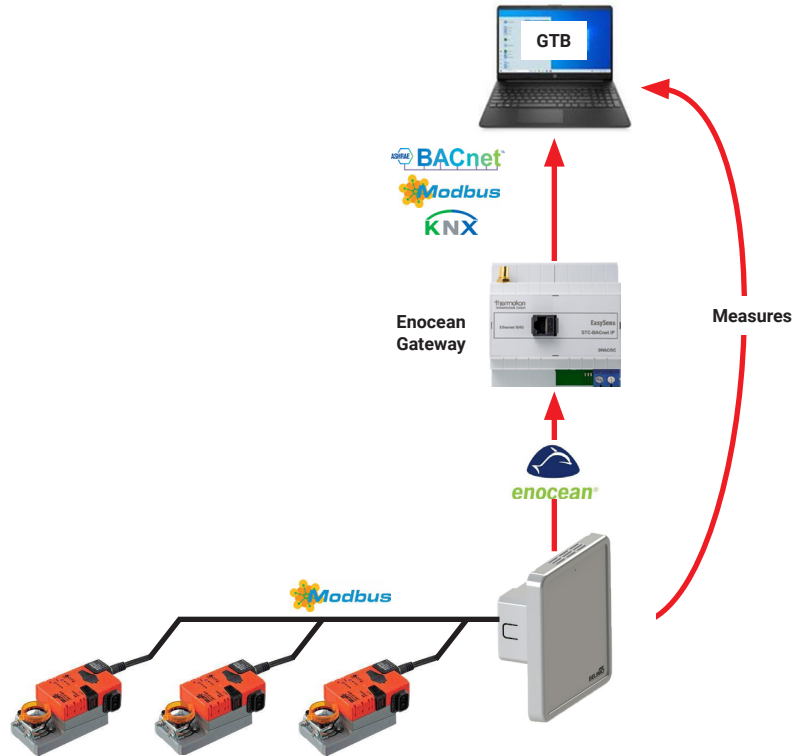
EXT-NS-EP5000MM-N
IAQ Multi-sensor master for Belimo Modbus actuators

Multi-sensor with fan control equipped with Belimo damper actuators and/or BDV in Modbus RTU (up to 8 actuators)

NFC

Modbus

Up to 8 actuators

xM24A-MOD
xMVD3-MOD

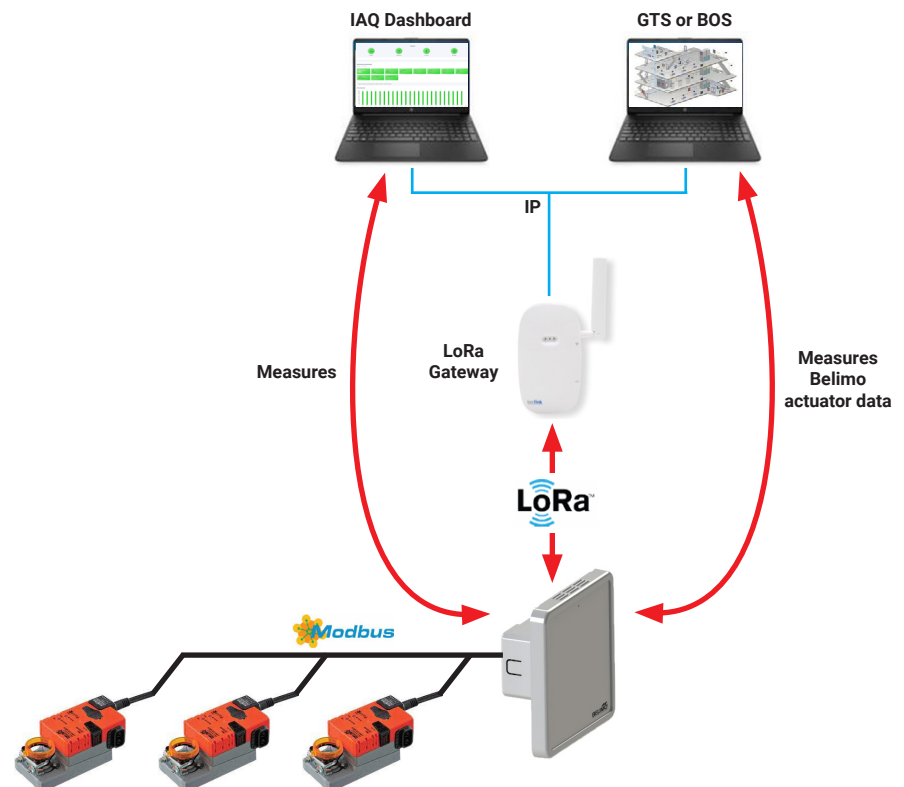xM24A-MOD
xMVD3-MOD

Types and operating process

EXT-NS-EP5000MME-N
IAQ Multi-sensor master for Belimo Modbus actuators and Enocean communication

Same as EXT-NS-EP5000MM-N with the addition of the measurement of physico-chemical parameters to the BMS in Enocean (radio)

EXT-NS-EP5000MML-N
IAQ Multi-sensor Master for Belimo Modbus actuators and LoRa communication

Same as EXT-NS-EP5000MM-N, with the addition of physical-chemical parameter measurements and actuator data (Max flow rate, flow rate, position, faults, etc.) to the BMS in LoRa (radio). It also allows the writing of flow rate (BDV only), position and forcing setpoints in the actuators.

Delivery

Delivery scope
- EXT-NS-EP5000xxxx
- Airtight flush-mounted box

Accessories		EXT-NS-ALIM-R	12W 24V DIN rail power supply for electrical cabinet – For more than 10 sensors
		EXT-NS-EP5000-CS	Case for surface mounting