VARIABLE AIR VOLUME CIRCULAR DAMPER

e·VAV self-sufficient & connected

NEW !

The **e·VAV** damper is a variable air volume damper used to manage fresh air in commercial and school buildings. It controls indoor air quality according to occupancy or CO_2 levels in the premises.

e·VAV generates its own energy to power an engine and requires no wiring. A turbine actuated by the airflow ventilation enables to operate the damper iris to adjust set the airflow.

VERSIONS

- **e·VAV**, variable air volume damper, energy self-sufficient and connected
- **e·QAI**, variable air volume damper with air quality sensor (CO_2 or VOC), energy self-sufficient and connected
- **e·SENSE**, air quality sensor (CO_2 or VOC), energy self-sufficient and connected

CONSTRUCTION

		e·VAV
Casing		PC-ABS, M1 certified
IRIS system		PC-ABS, M1 certified
External housing	Body	PC-ABS, M1 certified
External housing	Airproofing membrane	Neoprene foam, 1 mm thickness UL94-HF1 certified
Connection		Male connection with EPDM seal

DIMENSIONS
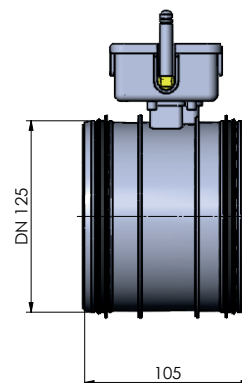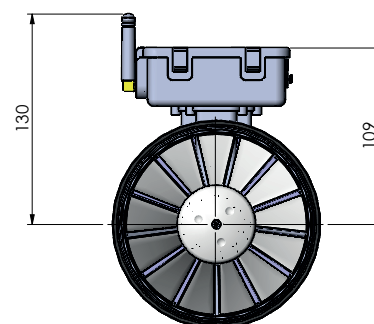
TECHNICAL SPECIFICATIONS

	e·VAV
Casing airtightness	Class C
Upstream/downstream airtightness	Not classified
Operating temperature	+0°C to +45°C
Operating relative humidity	0…80 % RH (non-condensing)

ISO 9001 14001 Certified

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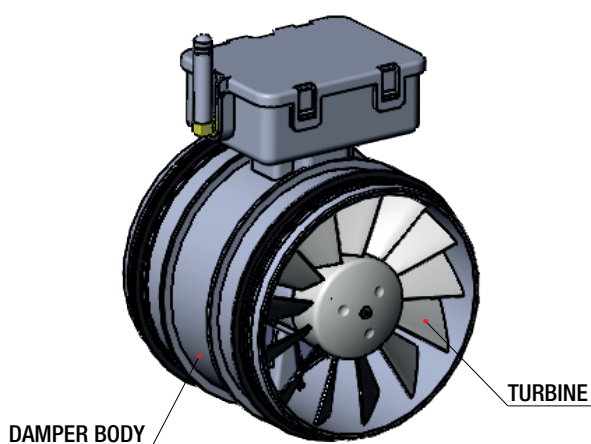
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e·VAV self-sufficient & connected

AIRFLOW PERFORMANCES

Airflow	Mininum starting	40 m³/h (Minimum airflow required to « restart » the turbine after a complete stop)
	Mininum operating	20 m³/h
	Recommended maximum	220 m³/h

Damper opening	Airflow	45 m³/h	130 m³/h	220 m³/h
100%	ΔP (Pa)	7	17	45
70%	ΔP (Pa)	10	30	80
	Lw (dB (A))	23	38	52
40%	ΔP (Pa)	22	125	245
	Lw (dB (A))	26	50	63

DESCRIPTION

DAMPER BODY

TURBINE

The external box has 2 plugs :
- One RJ45 to connect a CO_2 sensor or a presence detector
- One for the quick charge
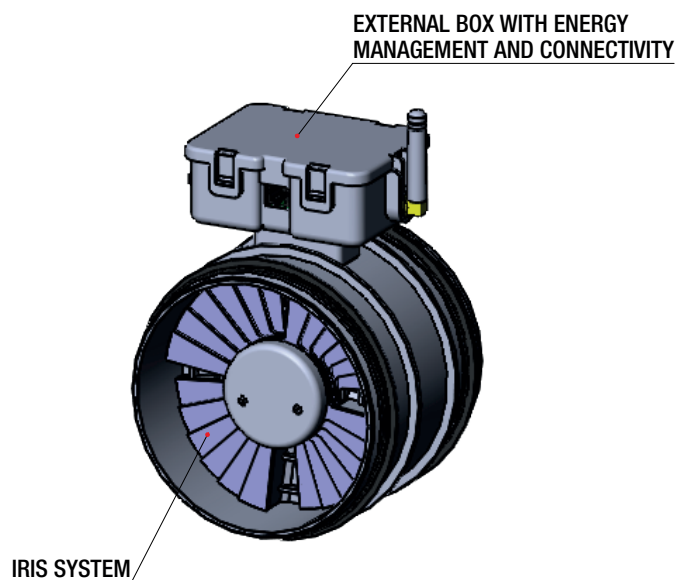
EXTERNAL BOX WITH ENERGY MANAGEMENT AND CONNECTIVITY

IRIS SYSTEM

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TECHNICAL SPECIFICATIONS SENSORS AND COMMUNICATION

Relative Humidity and Temperature sensor	RH operating range	0 to 80% (non-condensing)
	Accuracy	± 3%
	T° operating range	0 to 45 °C
	Accuracy	± 1°C
	Type	Low power MEMS sensor

CO$_2$ sensor	CO$_2$ operating range	0 to 2000 ppm
	Accuracy	± 50 ppm
	Type	NDIR low power

Wireless communication	Protocol	LoRaWan
	Frequency band	868 GHz

OPERATING PRINCIPLE

The e·VAV damper natively integrates the LoRaWAN wireless communication protocol :

• Operating settings can be read and modified remotely

• The airflow set points are sent through the wireless network from the BMS or the application server

• The measurements (temperature, humidity, CO$_2$ or COV level) are sent to the BMS or the application server through the wireless network

The e·VAV damper can also be controlled by a wired sensor (CO$_2$ sensor with a 0..10V signal or a presence detector with a dry contact) connected to the RJ45 plug of the external box. In this case the operating settings are still available and the measurements sent through the wireless network.

**The e·VAV damper can operate in variable or constant airflow mode (one or two steps) :**

• When the airflow is controlled by the CO$_2$ level, the damper is set to operate between a minimum and maximum airflow

• When the airflow is controlled by the occupancy level, the damper is set to operate with a constant airflow with two steps (unoccupied mode and nominal airflow)

• The damper is set on a constant airflow when it's required to garantee an airflow in the room.

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OPERATING WITH WIRED CONNECTION SENSOR

The e·VAV damper is controlled by a wired sensor or a presence detector connected to the external box by a RJ45 cable.
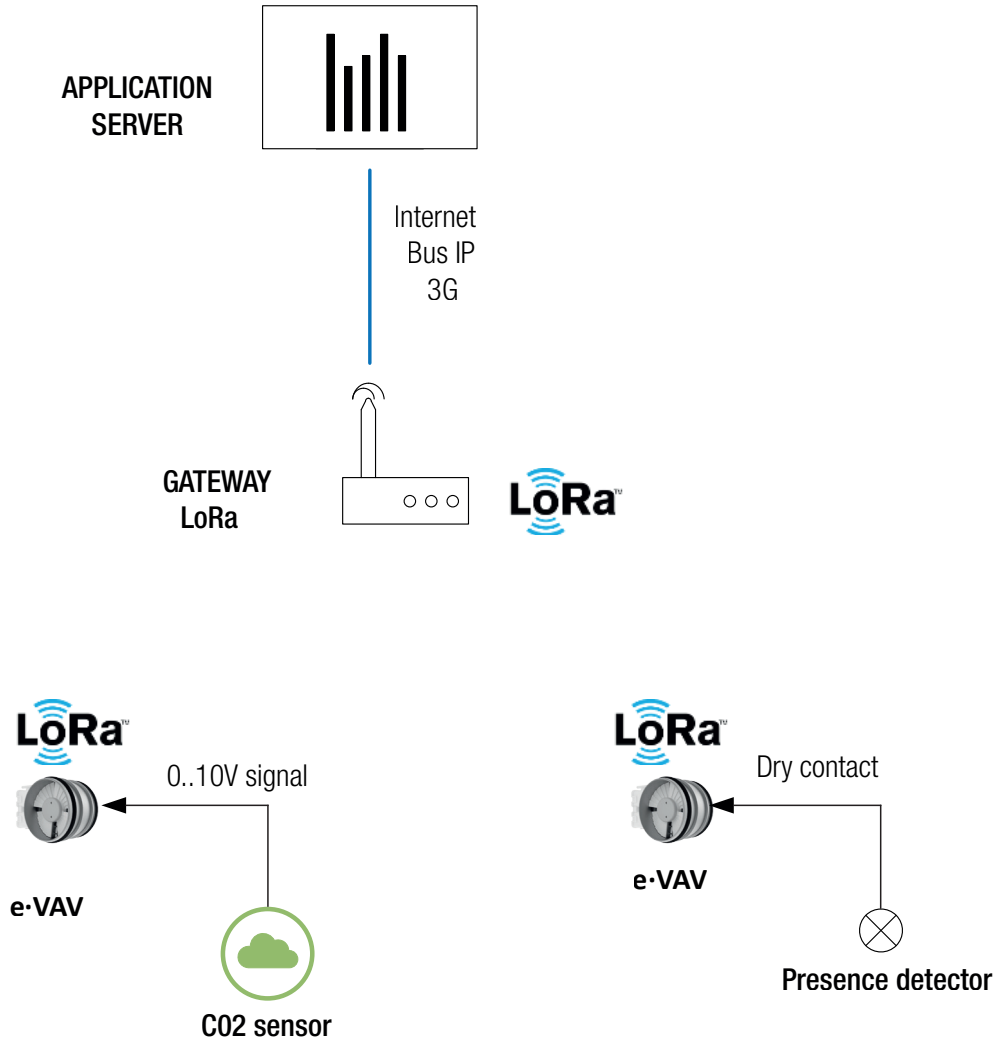
Self-sufficient and connected e·VAV damper :
- Installed in the supply air duct
- Connected to the LoRa gateway
- Sending information to the server (uplink) / receiving parameters (downlink)

CO_2 sensor :
- Installed in the room
- Wired to the e·VAV damper
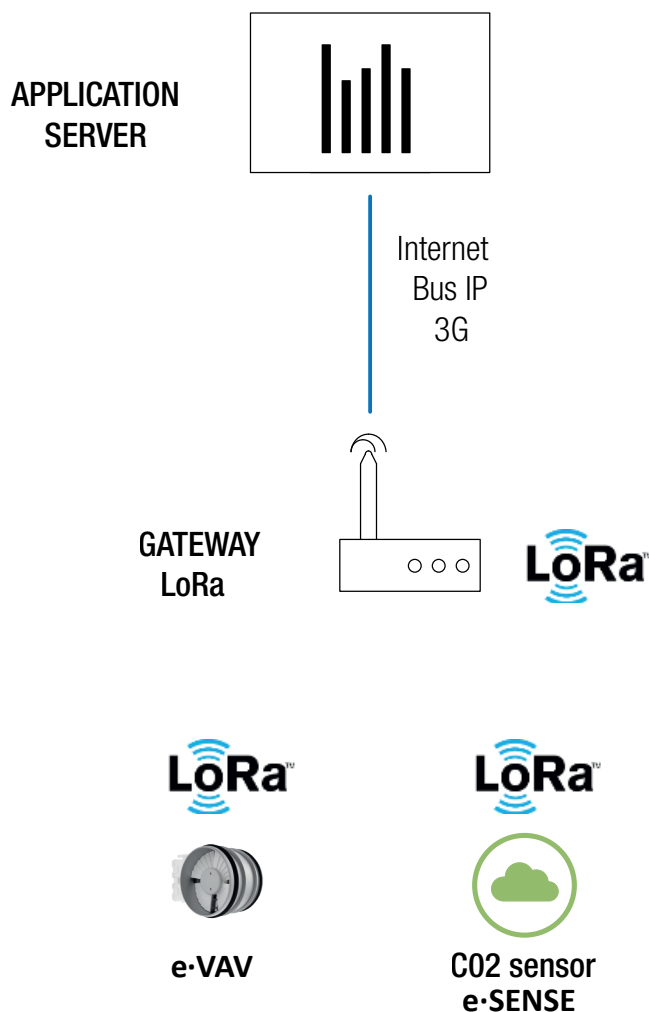- 0..10V control signal

Presence detector :
- Installed in the room
- Wired to the e·VAV damper
- Dry contact signal

OPERATING WITH WIRELESS CONNECTION SENSOR

The e·VAV damper is controlled by a CO_2 wireless sensor with a LoRaWan communication protocol, installed in the premise.

APPLICATION SERVER

Internet
Bus IP
3G

GATEWAY LoRa

LoRa™

LoRa™

LoRa™

e·VAV

CO2 sensor e·SENSE

Self-sufficient and connected e·VAV damper :
- Installed in the supply air duct
- Connected to the LoRa gateway
- Sending information to the server (uplink)
- Receiving setpoint and parameters from the server (downlink)
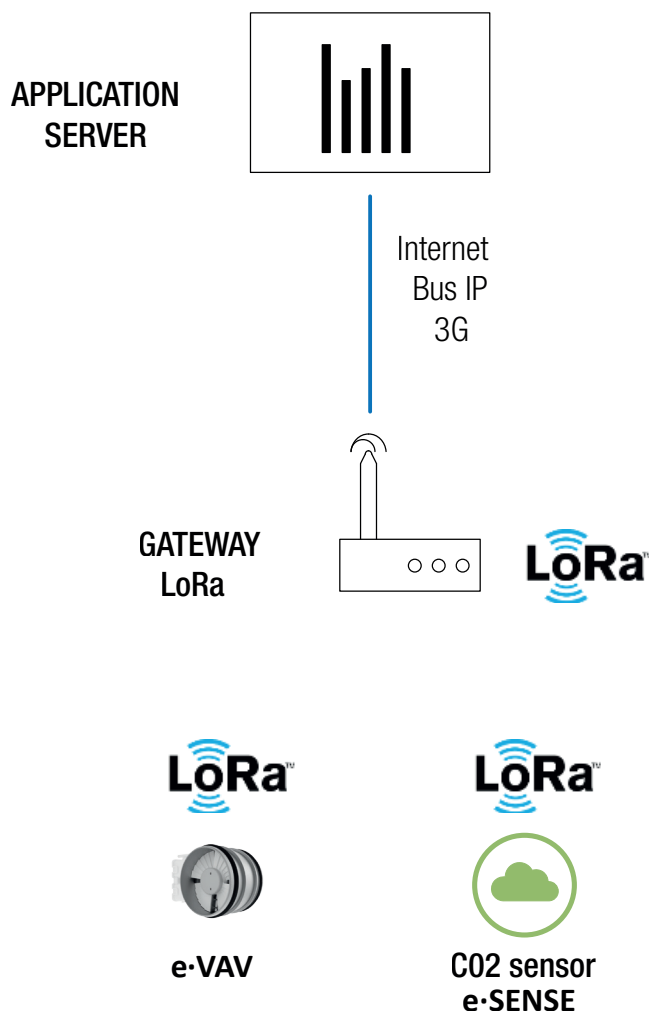
CO_2 wireless sensor :
- Installed in the room
- Connected to the LoRa gateway
- Sending information to the server (uplink)

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OPERATING WITH e·SENSE SENSOR

The e·VAV damper is controlled by a e·SENSE sensor installed in the exhaust duct

APPLICATION SERVER

Internet
Bus IP
3G

GATEWAY LoRa

LoRa

LoRa

LoRa

e·VAV

C02 sensor e·SENSE

Self-sufficient and connected damper e·VAV in supply :
- Installed in the supply air duct
- Connected to the LoRa gateway
- Sending information to the server (uplink)
- Receiving setpoint and parameters from the server (downlink)
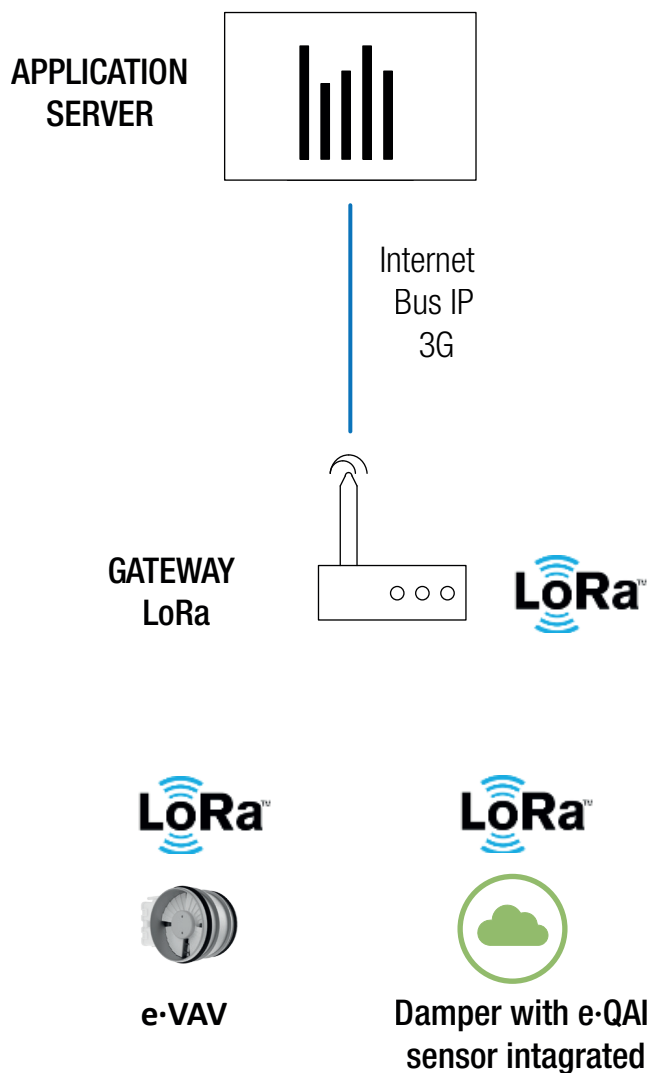
CO_2 sensor e·SENSE self-sufficient and connected :
- Installed in the exhaust air duct
- Connected to the LoRa gateway
- Sending information to the server (uplink)
- Receiving parameters (downlink)

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OPERATING WITH AN EMBEDDED CO$_2$ SENSOR IN e·QAI

The e·VAV damper is controlled by a e·QAI damper installed at the exaust side and embedding a CO$_2$ sensor

APPLICATION
SERVER

Internet
Bus IP
3G

GATEWAY
LoRa

LoRa

LoRa

e·VAV

Damper with e·QAI
sensor intagrated

Self-sufficient and connected damper e·VAV in supply :
- Installed in the supply air duct
- Connected to the LoRa gateway
- Sending information to the server (uplink)
- Receiving setpoint and parameters from the server (downlink)

Damper with e·QAI sensor integrated :
- Installed in the exhaust air duct
- Connected to the LoRa gateway
- The damper is self-regulated thanks to its integrated sensor
- Sending information to the server (uplink)
- Receiving parameters from the server (downlink)

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