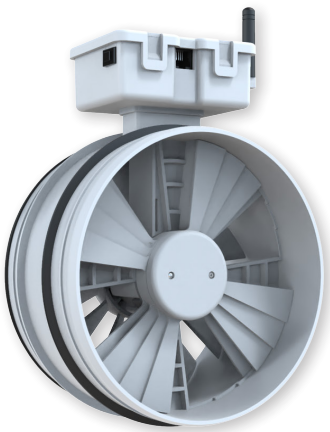
VARIABLE AIR VOLUME CIRCULAR DAMPER

e·VAV self-sufficient & connected



The **e·VAV** is a variable air volume damper which enables:

- to manage the airflow of fresh air in offices, commercial buildings and classrooms.
- to regulate the airflow and measure the indoor air quality with its integrated sensors (humidity,temperature and CO_2).

The airflow can also be regulated by an external 0-10V signal or a dry contact from a remote sensor (presence or CO_2 sensor).

e·VAV is energy self-sufficient and doesn't require any power cabling power wire. It generates its own electricity thanks to its turbine operating with the air flow and its energy harvesting system. This energy is used to supply electricity to the damper and measure indoor air quality.

VERSIONS

- **e·VAV**, variable air volume damper, energy self-sufficient and connected
- **e·VAV QAI**, variable air volume damper with air quality sensor (CO_2 or VOC), energy self-sufficient
- **e·SENSE**, air quality sensor (CO_2 ou VOC), energy self-sufficient
- **Pack e·VAV QAI :** made of one **e·VAV QAI** with CO_2 sensor for extract, one **e·VAV** for supply, and one specific master/slave wire

CONSTRUCTION

	e·VAV			
	Ø125 mm	Ø160 mm	Ø200*mm	Ø250*mm
Casing	PC-ABS, certified M1		Galvanized steel, M0	
Iris damper	PC-ABS, certified M1			
Airproofing membrane	Seal			
Connection	Male connection with EPDM seal			

* available end of 2023

TECHNICAL SPECIFICATIONS

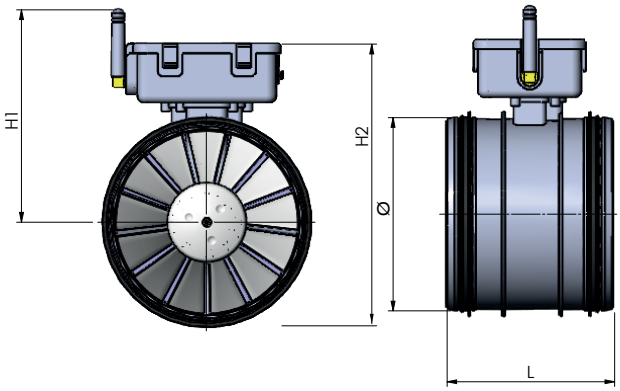
	e·VAV
Casing airtightness	Class C
Upstream/downstream airtightness	Not classified
Operating temperature	+0°C to +45°C
Operating relative humidity	0…80 % RH (non-condensing)
Wire control (room sensors)	0..10V signal or ON/OFF switch
Communication	LoRaWan

1214 rue des Chartinières I F 01120 DAGNEUX
Tél. +33 (0) 4 78 06 54 72 I export@f2a.fr

VARIABLE AIR VOLUME CIRCULAR DAMPER

e·VAV self-sufficient & connected

DIMENSIONS



	e·VAV			
	Ø125 mm	Ø160mm	Ø200*mm	Ø250*mm
Length	105 mm	105 mm	On request	
Height H1	130 mm	130 mm		
Height H2	172 mm	190 mm		
Weight	0.45 kg	0.70 kg		

* available end of 2023

AIR MANAGEMENT SPECIFICATION

	e·VAV			
	Ø125 mm	Ø160 mm	Ø200*mm	Ø250*mm
Airflow range min	30 m³/h	40 m³/h	60 m³/h	90 m³/h
Airflow range max	220 m³/h	400 m³/h	600 m³/h	1100 m³/h
Pressure range min - max	10 Pa - 250 Pa			

The advised airflow range is from 0.5 m/s to 5 m/s

* available end of 2023.

ACOUSTIC PERFORMANCES WITH A 50 Pa PRESSURE LOSS

	Air velocity m/s	Airflow m³/h	63 Hz	125Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Global Lw (dBA)
			Air-regenerated, sound power level Lw								
Ø125 mm	0.5	22	53	47	44	37	27	19	19	21	39
	1	44	55	64	54	39	37	23	20	21	50
	2	88	53	56	51	43	42	32	26	21	47
	3	133	54	52	56	47	45	37	32	22	50
	4	177	55	54	57	51	49	45	37	24	54
	5	221	56	54	52	53	53	50	42	27	56
Ø160 mm	0.5	36	55	40	34	26	21	16	17	31	33
	1	72	64	55	47	41	37	34	31	32	38
	2	144	62	57	57	50	41	37	33	33	46
	3	217	57	55	59	42	38	31	24	32	49
	4	289	58	57	54	46	42	36	30	30	49
	5	361	57	57	62	49	45	46	35	32	56

1214 rue des Chartinières I F 01120 DAGNEUX
Tél. +33 (0) 4 78 06 54 72 I export@f2a.fr

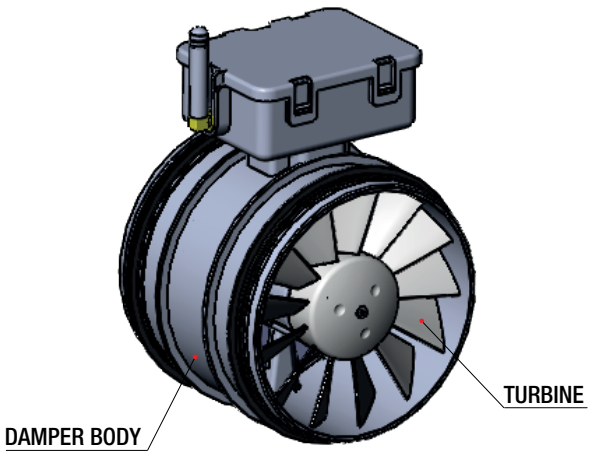
VARIABLE AIR VOLUME CIRCULAR DAMPER

e·VAV self-sufficient & connected

TECHNICAL SPECIFICATIONS SENSORS AND COMMUNICATION

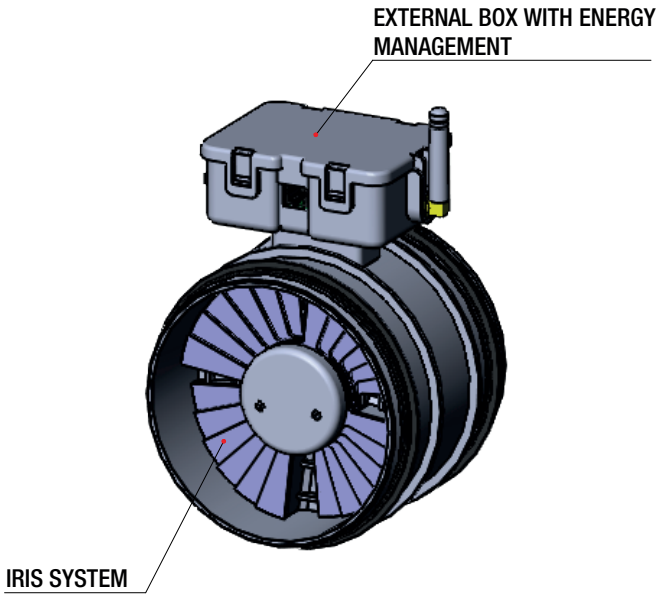
Relative Humidity and Temperature sensor	RH operating range	0 to 80% (non-condensing)
	Accuracy	± 3%
	Operating temperature T°	0 to 45 °C
	Accuracy	± 1°C
	Type	Low power MEMS sensor
CO_2 sensor	CO_2 operating range	0 to 2000 ppm
	Accuracy	± 50 ppm
	Type	NDIR low power
Communication RF	Protocol	LoRaWan
	Frequency band	868 GHz

DESCRIPTION



The external box has 1 plug:

- One RJ12 to connect a CO_2 sensor or a presence detector



ISO 9001 14001 Certified

1214 rue des Chartinières I F 01120 DAGNEUX
Tél. +33 (0) 4 78 06 54 72 I export@f2a.fr

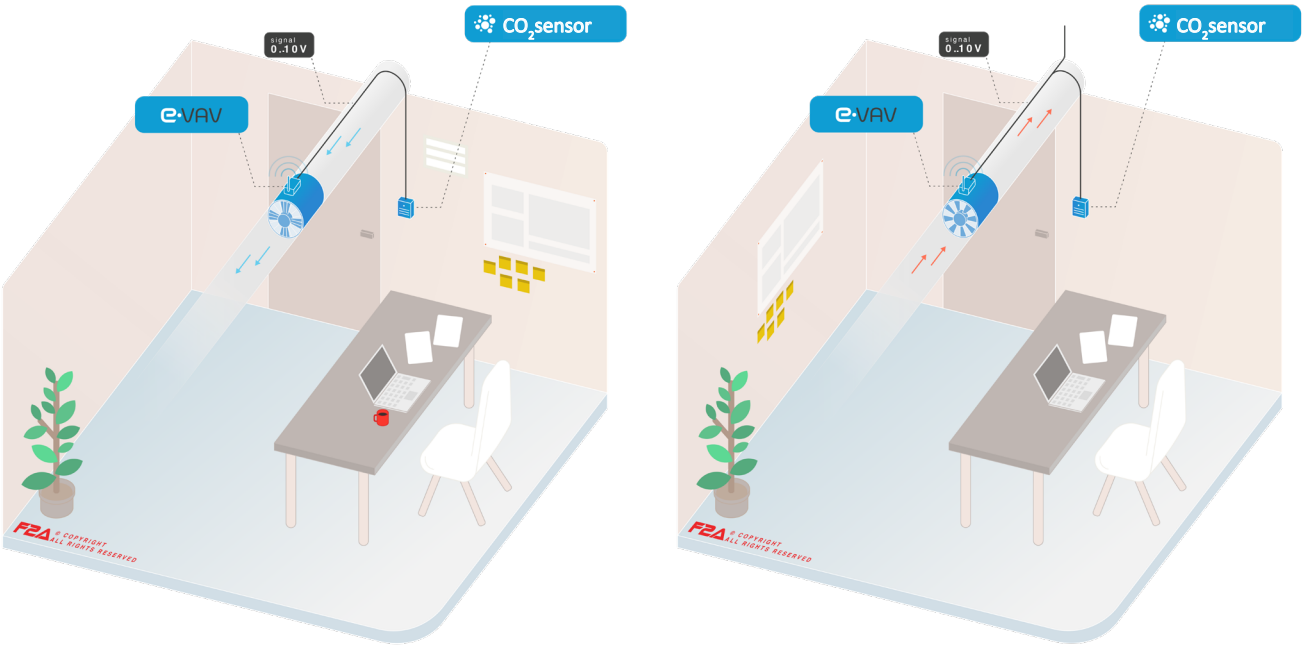
F2A Equipementier en traitement de l'air

VARIABLE AIR VOLUME CIRCULAR DAMPER

e·VAV self-sufficient & connected

OPERATING PRINCIPLE

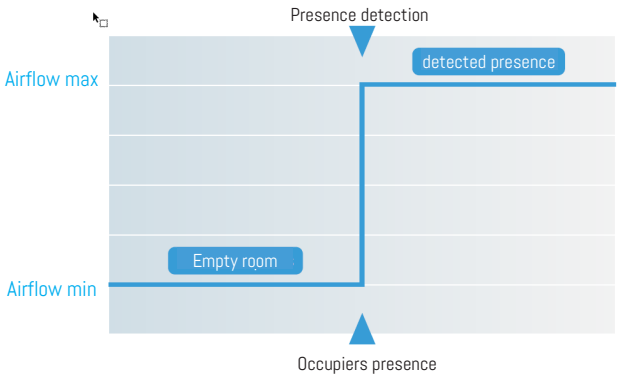
Supply or exhaust air controlled by a room CO_2 sensor

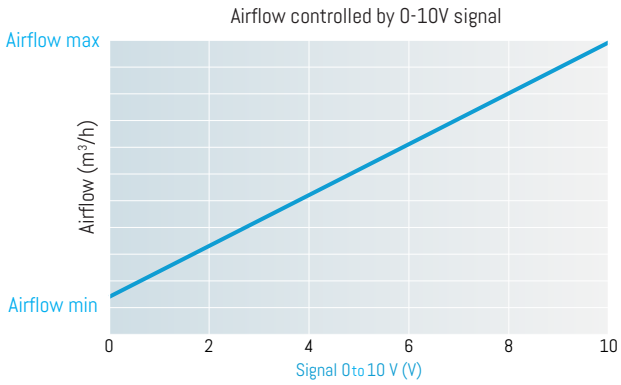


The damper is controlled by a 0..10 V signal from a room CO_2 sensor which itself measures in real time the CO_2 concentration and sends a 0..10 V signal to the damper to adapt the airflow rate.

The damper is factory set. The remote sensor can be supplied with 24V by an external source.

The CO_2 sensor can be replaced by a presence detector.





ISO 9001 14001 Certified

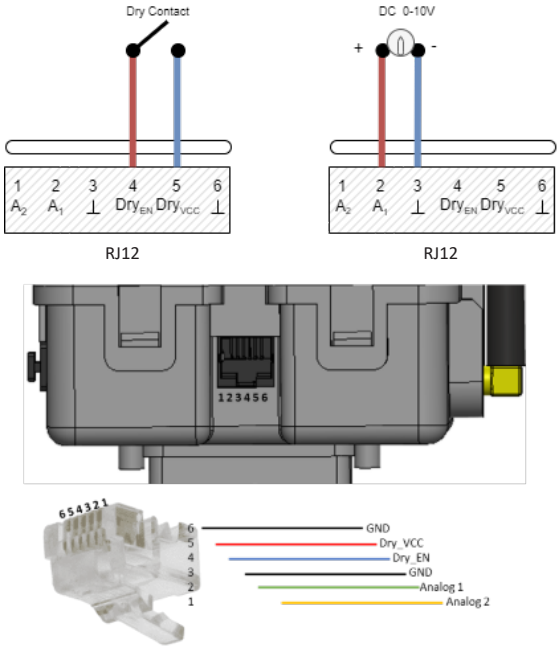
1214 rue des Chartinières | F 01120 DAGNEUX
Tél. +33 (0) 4 78 06 54 72 | export@f2a.fr

F2A Equipementier en traitement de l'air

VARIABLE AIR VOLUME CIRCULAR DAMPER

e·VAV self-sufficient & connected

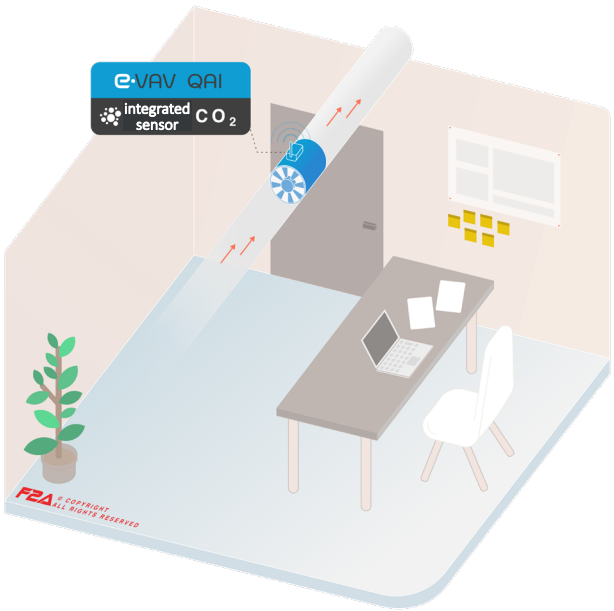
Wiring diagram



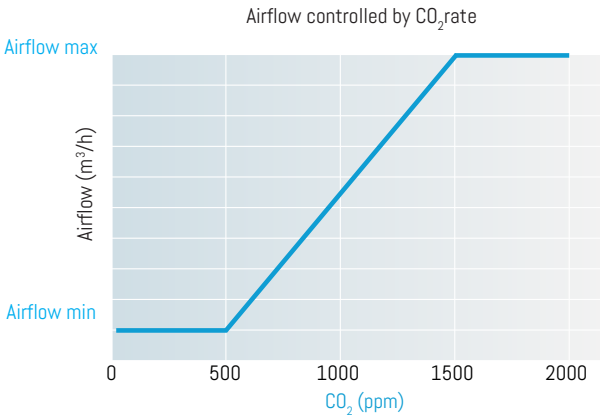
Equipment list:

- 1 e·VAV
- 1 CO_2 room sensor 24V
- 1 power transformer 230V-24V
- In option: presence detector.

Exhaust air controlled by an e·VAV QAI with integrated CO_2 sensor



The **e·VAV QAI** damper in the exhaust is controlled by the CO_2 measured by its integrated sensor.
The damper is factory set with minimum and maximum airflow and CO_2 values.
No connection needed



CO_2 min: 500 ppm → **airflow min**
CO_2 max 1500 ppm → **airflow max**

Equipment list:

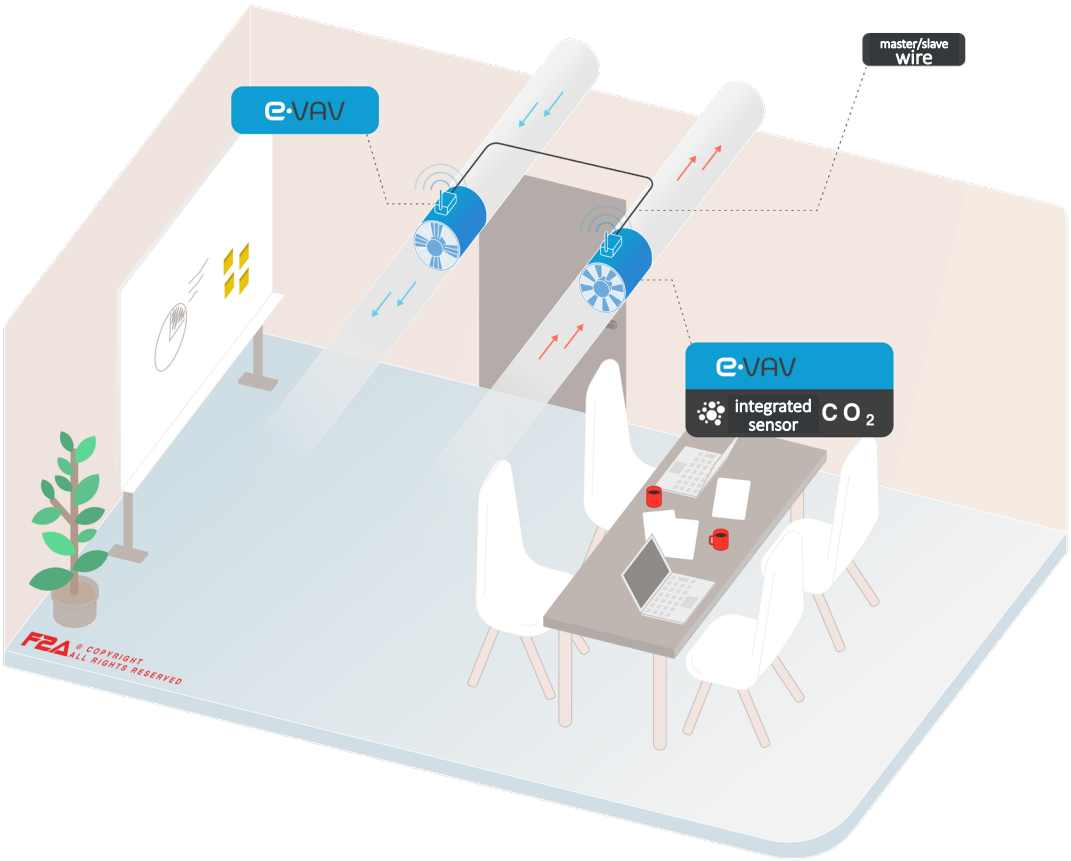
- 1 **e·VAV QAI**

ISO 9001 14001 Certified
1214 rue des Chartinières | F 01120 DAGNEUX
Tél. +33 (0) 4 78 06 54 72 | export@f2a.fr
F2A Equipementier en traitement de l'air

VARIABLE AIR VOLUME CIRCULAR DAMPER

e·VAV self-sufficient & connected

Exhaust air controlled by an e·VAV QAI with integrated CO_2 sensor at the exhaust and one slave e·VAV at the supply



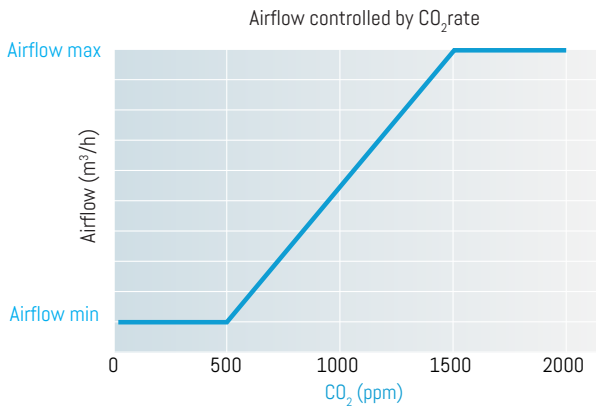
The **e·VAV QAI** damper in the exhaust is controlled by the CO_2 measured from its integrated sensor. It is factory set with minimum and maximum airflow and CO_2 values.

The **e·VAV** damper at the supply is on slave mode controlled by the **e·VAV QAI** master. The signal is transmitted via a specific wire provided.

No connection needed

Pack **e·VAV QAI** equipment list:

- 1 **e·VAV QAI** at the exhaust
- 1 **e·VAV** at the supply
- 1 master/slave wire



ISO 9001 14001 Certified

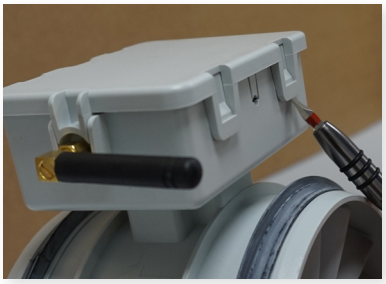
1214 rue des Chartinières | F 01120 DAGNEUX
Tél. +33 (0) 4 78 06 54 72 | export@f2a.fr

F2A Equipementier en traitement de l'air

VARIABLE AIR VOLUME CIRCULAR DAMPER

e·VAV self-sufficient & connected

Wiring diagram



1/ Open the box with a flat screwdriver by unhooking the 4 clips

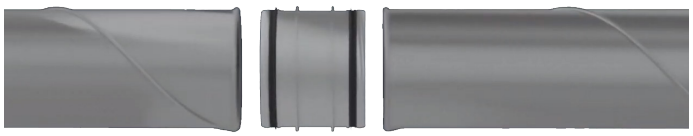
2/ Connect the connector to the **« serial »** port of the electronic board

3/ Pass the cable through the biggest hole of the box

4/ Close the electronic box

INSTALLATION

Always install the **e·VAV** with the airflow facing the turbine.
The damper fits between two sections of ductwork thanks to EPDM seals. No screws are required.



COMMISSIONING

e·VAV needs an air flow to be activated. Start the AHU and wait for the **e·VAV** to start the regulation. The start-up time is a maximum of 60 minutes and an average of 40 minutes.

After 60 min, **e·VAV** will start to reach the target according to the signal it receives: dry contact, 0-10V or CO_2.

LoRa commisioning: all products are labelled with their LoRa identifier

N° Article :	EVAVD125-S	**Designation :**	EVAV D125 HRT		
Dev EUI :	XX-XX-XX-XX-XX-XX-XX-XX				
Label :	eVAV T5	**Building :**	n°1	**Place :**	R5
Regulation :	0-10 V				
Airflow min :	40	**Value min :**	0 V		
Airflow max :	220	**Value max :**	10 V		

ISO 9001 14001 Certified

1214 rue des Chartinières | F 01120 DAGNEUX
Tél. +33 (0) 4 78 06 54 72 | export@f2a.fr

F2A Equipementier en traitement de l'air

VARIABLE AIR VOLUME CIRCULAR DAMPER

e·VAV self-sufficient & connected

MONITOR YOUR INDOOR AIR QUALITY AND ACT ON YOUR SYSTEM

The **e·VAV** communicates with LoRaWAN protocol. It allows you to manage all parameters remotely.
With the integrated sensors, you can monitor the indoor air quality (CO_2), the comfort and all the airflows in your buildings. You can check the damper efficiency, optimize the consumption and the costs.
You can act to change the configuration of the damper remotely controlled through the LoRa network.
It allows you to adjust your ventilation system to optimize it during all the building life cycle.

Benefits of the LoRa **e·VAV:**

- Monitor the indoor air quality during the whole life time of the building
- Act and control your variable air volume damper remotely
- Detect and solve issues without intervention

Products list**:**

- **e·VAV**: self-sufficient variable air volume damper
- Gateways: box to receive and send LoRa information
- Dashboard: a ready-to-roll solution to monitor all the dampers

The **e·VAV** can also interact with other IoTs products in the building as for instance a room CO_2 sensor which has the LoRa communication.

ISO 9001 14001 Certified

1214 rue des Chartinières | F 01120 DAGNEUX
Tél. +33 (0) 4 78 06 54 72 | export@f2a.fr

F2A Equipementier en traitement de l'air