



E4000 air quality probe setting in EnOcean sensor mode

Ver	Date	Modification / Update
V1	Initial	Version Initial/Initial version
V2	09 June 2012	English added
V3	10 Oct. 2012	Repeater added
V4	28 Oct. 2012	Emission of telegram warning
V5	09 Dec 2013	Ventilation thresholds setting

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1. EnOcean telegrams

There are two types of telegrams:

- Control telegrams (to be chosen within four types)
- Measurement telegrams

Control telegrams types shall be adapted to the kind of ventilation (one or two speeds, continuous) heating and cooling (various valves)

Measurement telegrams are intended for or intelligent ventilation control systems that can interpret the measurements (thresholds, hysteresis ...) to control the air renewal rate.

The following telegrams are sent:

- Controls for ventilation (Bi Directional) (EEP 4BS: A5-20-01)
or (EEP 4BS: A5-20-02)
or (EEP 4BS: A5-20-03)
or
- Commands for continuous ventilation (uni-directional) (EEP RDS: F6-02-01)
or
- Commands for single-speed ventilation (ON OFF) (EEP RDS: F6-02-01)
or
- Commands for Two-speed ventilation (EEP RDS: F6-03-01)
and
- CO₂, Humidity and temperature Measurements (EEP 4BS: A5-09-04)
and
- VOC Measurement (EEP 4BS: A5-09-05)¹

And for temperature heating control:

- Control valve (Bi Directional) (EEP 4BS : A5-20-01)
Or
- Control valve Basic (Bi Directional) (EEP 4BS : A5-20-02)
Or
- Control valve (Bi Directional) (EEP 4BS : A5-20-03)
Or
- Control Generic HVAC Interface (Bi Directional) (EEP 4BS : A5-20-10)
Or
- Temperature (setting + measure) (EEP 4BS : A5-10-03)

And for temperature cooling control:

- Control valve (Bi Directional) (EEP 4BS : A5-20-01)
Or
- Control valve Basic (Spartan) (Bi Directional) (EEP 4BS : A5-20-02)
Or
- Control valve (Bi Directional) (EEP 4BS : A5-20-03)
Or
- Control Generic HVAC Interface (Bi Directional) (EEP 4BS : A5-20-10)
Or
- Temperature (setting + measure) (EEP 4BS : A5-10-03)

And, if the annexes probes are installed:

- Radon Measurement (EEP 4BS: A5-09-06)²
and or

¹ , ² , ³ , ⁴ New EEP documented in the EEP2.5, See annex 1 for details

- Particles Measurement (EEP 4BS: A5-09-07)³
and or
- Ozone Measurement (EEP 4BS: A5-09-05)⁴

The ventilation control algorithm is similar to that of the relays (ventilation one or two speeds) and 0-10V output (continuous ventilation) of the analog module and combines the CO2 the VOCs and humidity measurements.

The setting of thresholds of CO2 and humidity (VOC thresholds are regulatory) is active in EnOcean sensor mode as for the analog module. Default thresholds can be modified via administrative software.

1.1. Transmission of EnOcean telegrams

**The probe sends a telegram of a different profile every 5 seconds
(Only if the probe has been paired for this profile)**

NO PAIRING = NO RADIO TRANSMISSION

Without annex probe, the E4000 probe is sending up to 5 telegrams (1 for ventilation control, 1 for CO2 + Temperature & Humidity, one for VOCs, 1 for heater control, 1 for cooling control) so a 5 to 30 seconds cycle.

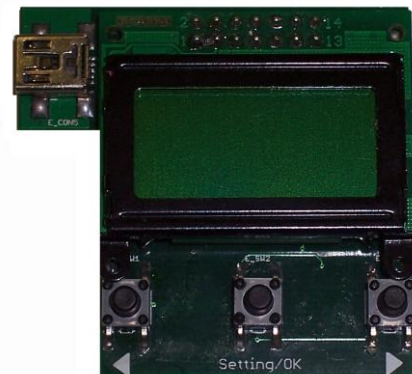
Telegram emissions are not conditioned by changes of measures because emission rate is enough vis-à-vis the HVAC. This rate is not adjustable.

2. Learning

The E4000 probe is using an LCD configuration tool that allows pairing the probe with actuators for air renewal and temperature control. This LCD fits on the motherboard. It is not necessary to shut down the probe to plug the tool.

Control buttons

- The left and right buttons allow navigation in the menus.
- The middle button allows entering into the learning mode and validating the menu.



3. Procedure

- 1) Insert the LCD, the screen displays the first line in black.
- 2) Start the menu display by pressing Setting (Middle button).
- 3) The display shows the serial number of the probe for 3 seconds and then displays (a pressing on the right button display the firmware release number):

	R	S	4	8	5		
>	E	N	O	C	E	A	N
	S	E	T	T	I	N	G
	E	X	I	T			

The third blank line is not visible but is still accessible via the navigation buttons.

Note that the "ENOCEAN" menu is only functional when the radio module is installed. In the presence of the EnOcean radio module AND a daughter wired bus board (KNX, LON or POE) the gateway function is automatically enabled and sub menu are different. For Gateways menus, refer

to the appropriate gateway manual. This document only deals with the EnOcean sensor mode.

4. EnOcean Devices Learning

Select the line "ENOCEAN" with the navigation buttons and press OK (Middle button).

	R	S	4	8	5		
>	E	N	O	C	E	A	N
	S	E	T	T	I	N	G
	E	X	I	T			

The screen displays the following choices:

>		1		F	A	N	
		2		T	E	M	P
		3		E	C	O	
		4		C	O	2	
		5		V	O	C	
		6		R	A	D	N
		7		P	A	R	T
		8		O	3		
	R	E	T	U	R	N	

4.1. Ventilation

4.1.1) Select "FAN" to set the ventilation actuators and press OK (Middle button).

The screen displays the following choices:

>		U	N	U	S	E	D
		R	E	T	U	R	N

This screen shows the type of actuator already selected. By default it shows UNUSED

4.1.2) Select the actuator (or UNUSED) and press OK (Middle button).

The screen displays the following choices:

>	H	V	A	C	1		
	H	V	A	C	2		
	H	V	A	C	3		
	S	T	E	P	S		
	2	S	P	E	E	D	
	U	N	U	S	E	D	S
	R	E	T	U	R	N	

Only one type of air infuser, extractor or flap valve is selectable from a list. Unlike heating where more radiators can be installed in a room, it is considered that only a single ventilation system can be installed.

The numbers correspond to the different EEP actuators numbers:

- A5-20-01: HVAC1 Battery Powered Actuator (BI-DIR)
- A5-20-02: HVAC2 Basic Actuator (BI-DIR)
- A5-20-03: HVAC3 Line powered Actuator (BI-DIR)

Other actuators correspond to following EEP numbers:

- F6-02-01: **STEPS** Ventilation motor or flap valve Command with dimmer (unidirectional)
- F6-02-01: **2 SPEEDS** Ventilation Commands for two-speed (ON/OFF)

Note that some EPP of valves identified as wired or battery can be powered by an energy harvesting system. Make sure of the EEP used.

In case of **STEPS** command (continuous)

The continuous command is a copy of the 1-10V analog command. See the installation manual for details on thresholds setting by micro switches.

Note that the command has a minimum of 10% for the building health, this minimum apply during absences. This command goes exceptionally to 0% in cases of a window opened more than one minute.

Warning: when controlling speed of fan motor or controlling a flap valve in position by a motor controlled in position by 1-10V (STEPS), use a dimmer type actuator.

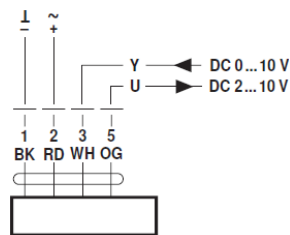
All dimmer actuators are not compatible with inductive load such as motors. All types of motors are also not controllable in speed by a dimmer.

- Fan speed control.



- Flap valve control.

There are EnOcean actuators with 1-10V output that can directly control flap motors in position. The flow will therefore be proportional to the flap opening.



Dimmer actuator shall be set in the following mode to work properly with the gateway:

- A short I key press: Recall the last dimming value.
- A long I key press: Increase the dimming value.
- A short 0 key press: Stop.
- A long 0 key press: Decrease the dimming value down to the minimum value (about 10%).

Setting of the actuator is manufacturer dependent and simulated short or long key press via LCD tool can be used.

The E4000 probe considers a typical dimming actuator reaching 100% from 0 in 3 seconds with a long key press interpretation of one second. It is therefore necessary to get such data from the dimmer manufacturer. Those parameters are settable (see chapter 5.1)

In case of **2 SPEEDS** command (On/Off) :

On and Off commands are similar to the relay control. See installation manual for details of thresholds modified by micro switches. However the NO / NC micro switch is used here to denote the threshold V1 or V2 knowing that each of these thresholds has two positions. This provides four possible levels of CO2 and two levels of VOCs.

If case of window opened or absence, ventilation switches to low speed automatically.

Note that this On/Off control should be connected to the high speed of a two speeds fan, low speed is dedicated to permanent minimum ventilation for building health.

An ON command therefore switch to high speed and an off command switch to low speed.

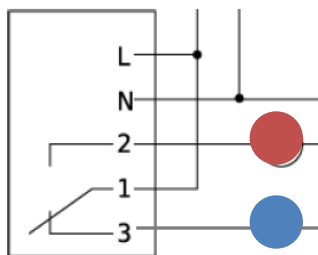
Be careful not to simultaneously control low and high speed of the same fan. A double-coil motor will burn out.

The command enables high speed and disables low speed ventilation simultaneously.

To do so you must use an inverting switching contact actuator: a normally open contact (NO) and one normally closed (NC). Simply connect the low speed to NC and high speed to NO.

For some small installations, it is possible (but not recommended) to use a fan with a single speed. In this case there is no minimum permanent ventilation.

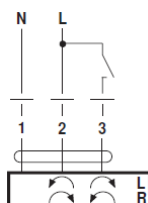
- 2 speeds fan Command



- Flap valve Command

It is also possible to control a flap valve in full or few with a single contact actuator.

The equivalent of the low speed is provided by the half-opening of the flap valve in "closed" position.



- One speeds fan Command (not recommended)



Blind actuators shall be set in the following mode to work properly with the probe:

- A long I key press: Start UP.

- A short I key press: Stop.
- A long 0 key press: Start Down.
- A short 0 key press: Stop.

Setting of the actuator is manufacturer dependent and simulated short or long key press via LCD can be made.

4.1.3) Choose the type of EnOcean ventilation actuator and press OK (Middle button)
The screen displays the following choices.

>	L	E	A	R	N		
	V	I	E	W		I	D
	E	R	A	S	E		
	R	E	T	U	R	N	

4.1.4) Select "**LEARN**" and press OK (Middle button) to start learning.
The screen displays the following message:

If the actuator is **unidirectional**:

The screen displays the following message:

S	I	M		S	W	C	H
I							0

This message indicates that the E4000 probe simulates a switch. The buttons of the LCD tool that are under the I and O displayed correspond to those of an EnOcean switch.
EnOcean switches having no learning mode; regular switching is used for pairing.

Press the learning key of the concerned EnOcean actuator.
Unidirectional EnOcean actuators being enable to respond; there is no pairing message and validation of the pairing on the screen. Control must be performed by controlling the actuator side LED

Once paired, pressing the right or left button will allow actuator setting if required.
A long or short key press is similar to a long or short key press of a rocker switch.
Some dimmers or ON/OFF actuators are parameterized and require some actions on a button (see document from the manufacturer of the actuator for details)
Pressing the center button exits the pairing and setting mode.

If the actuator is **bidirectional**:

S	E	N	D	I	N	G	
L	E	A	R	N		M	S

This message flashes during 30 seconds at the emission rate of learning telegrams.
During this time, press the learning key of the concerned EnOcean device.
Bidirectional EnOcean actuators sending a reply; there is a pairing and validation message on the screen displaying the serial number.

L	E	A	R	N	E	D	
X	X	X	X	X	X	X	X

It is then necessary to confirm or cancel the pairing after checking this serial number.

S	A	V	E				
C	A	N	C	E	L		

Press OK (Middle button) and the following confirmation message is displayed.

S	A	V	E	D			

4.1.5) After the learning messages, the screen returns to the original list to continue potential learning measurement telegrams.

		1	➔	F	A	N	
		2		T	E	M	P
		3		E	C	O	
>		4		C	O	2	
		5		V	O	C	
		6		R	A	D	N
		7		P	A	R	T
		8		O	3		
	R	E	T	U	R	N	

Note that the symbol ➔ indicates that pairing has been done (be careful, not necessarily successful because not always bidirectional)

4.2. Heating and cooling

The E4000 probe can be used as temperature sensor and send commands to heating and cooling. This configuration is more suitable for installations where the operator does not want occupant to act on the temperature setting.

This section deals with the pairing with temperature actuators (heating or cooling). Adjusting the temperature settings is discussed in Chapter 6.

4.2.1) Select "**TEMP**" and press OK (Middle button).

		1	→	F	A	N	
>		2		T	E	M	P
		3		E	C	O	
		4		C	O	2	
		5		V	O	C	
		6		R	A	D	N
		7		P	A	R	T
		8		O	3		
	R	E	T	U	R	N	

The screen displays the following choices:

>	H	E	A	T	I	N	G
	C	O	O	L	I	N	G
	R	E	T	U	R	N	

4.2.2) Select "**HEATING**" to determine the heating control(s) or "**COOLING**" to determine the cooling control(s) and press OK (Middle button).

The screen displays the following choices:

>	1	-	-	-	-	-	-
	2	-	-	-	-	-	-
	3	-	-	-	-	-	-
	4	-	-	-	-	-	-
	5	-	-	-	-	-	-
	R	E	T	U	R	N	

4.2.3) Select the desired line (because the probe can control multiple heaters or air conditioners equipped with EnOcean valves or actuators) and press OK (Middle button).

The screen displays the following choices:

>	V	A	L	V	E	.	1
	V	A	L	V	E	.	2
	V	A	L	V	E	.	3
	H	V	A	C	.	1	0
	T	M	P		R	E	G
	R	E	T	U	R	N	

The numbers correspond to the different EEP valves numbers:

- A5-20-01: Battery Powered Actuator (BI-DIR)
- A5-20-02: Basic Actuator (BI-DIR)
- A5-20-03: Line powered Actuator (BI-DIR)

Other actuators correspond to following EEP numbers:

- A5-20-10: Generic HVAC Interface (BI-DIR)
- F6-02-01 : Dimming (STEPS) used in some energy harvesting valves
- A5-10-03: Temperature (measure and control)

Note that some EPP of valves identified as wired or battery can be powered by energy harvesting. The EEP number of the valve should be verified.

4.2.4) Select the desired line with the navigation buttons and press OK (Middle button). The screen displays the following message:

>	L	E	A	R	N		
	V	I	E	W		I	D
	E	R	A	S	E		
	R	E	T	U	R	N	

4.2.5) Select "LEARN" and press OK (Middle button) to start learning. The screen displays the following choices:

If the actuator is unidirectional:

S	E	N	D	I	N	G	
L	E	A	R	N		M	S

This message flashes for 30 seconds at a rate of learning telegrams transmission. During this time, press the learning key of the concerned EnOcean device. Unidirectional EnOcean actuators being enable to respond; there is no pairing message and validation of the pairing on the screen. Control must be performed by controlling the actuator side LED.

If the actuator is bidirectional:

S	E	N	D	I	N	G	
L	E	A	R	N		M	S

This message flashes during 30 seconds at the emission rate of learning telegrams. During this time, press the learning key of the concerned EnOcean device. Bidirectional EnOcean actuators sending a reply; there is a pairing and validation message on the screen displaying the serial number.

L	E	A	R	N	E	D	
X	X	X	X	X	X	X	X

It is then necessary to confirm or cancel the pairing after checking this serial number.

>	S	A	V	E			
	C	A	N	C	E	L	

Press OK (Middle button) and the following confirmation message is displayed.

S	A	V	E	D			

4.2.6) After the learning messages, the screen returns to the initial list to indicate learned actuators with the → symbol.

>	1		→	V	L	V	1
	2			-	-	-	-
	3			-	-	-	-

	4			-	-	-	-
	5			-	-	-	-
	R	E	T	U	R	N	

Back to the upper menu to select additional actuators if necessary

4.2.7) Displaying IDs :

- a) Select the EnOcean device you want to know the ID
- b) Select the option « VIEW ID »

	L	E	A	R	N		
>	V	I	E	W	I	D	
	E	R	A	S	E		
	R	E	T	U	R	N	

- c) The displayed information depend on the kind of the selected device :

If the paired device is a sensor, a switch, a handle, etc..., the channel number and the sensor ID will be displayed.

C	H		X	X			
X	X	X	X	X	X	X	X

If the paired device is a unidirectional actuator, only the ID sent by the E4000 probe will be displayed.

X	X	X	X	X	X	X	X

If the paired device is a bidirectional actuator, the ID sent by the E4000 probe will be displayed on the first line and the one of the paired actuator will be displayed on the second line.

X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X

4.2.8) Deletion of learning:

The links with the EnOcean devices can be removed as follow:

- a) Select the EnOcean device from which the deletion of learning is to process
- b) Select the option « ERASE »

	L	E	A	R	N		
	V	I	E	W	I	D	
>	E	R	A	S	E		
	R	E	T	U	R	N	

- c) Confirm by selecting « YES »

>	Y	E	S				
	N	O					

- d) When processed « Erased » is displayed

E	R	A	S	E	D		

4.3. Eco mode sensors

The control functions of heating and cooling can switch into power saving modes through a combination of sensors. (Buttons, card reader, presence sensor, window handle, window opening sensor)

4.3.1) Select «ECO» and press OK (Middle button).

		1	→	F	A	N	
		2		T	E	M	P
>		3		E	C	O	
		4		C	O	2	
		5		V	O	C	
		6		R	A	D	N
		7		P	A	R	T
		8		O	3		
	R	E	T	U	R	N	

4.3.2) Start by pairing EnOcean sensors

These EnOcean sensors can be associated to the temperature control function and can stop the heating or cooling (opening windows) or switch to economy mode (absence).

The screen displays the following choices:

>	0	1		-	-	-	-
	0	2		-	-	-	-
	0	3		-	-	-	-
	0	4		-	-	-	-
	0	5		-	-	-	-
	0	6		-	-	-	-
	0	7		-	-	-	-
	0	8		-	-	-	-
	0	9		-	-	-	-
	1	0		-	-	-	-
	R	E	T	U	R	N	

The here above list is empty by default. Each channel can be set from a list of two types of sensors that can be associated with heating and cooling:

- The window handles (HAND) and opening sensors (SWIN) can cut heating and cooling when open.
- The occupancy sensor (OCCUPCY), the card reader (CARD) and the switch occupancy (OCC SW) can switch the heating and cooling in economy mode.

Up to 10 sensors can be combined.

4.3.3) Select the desired channel number with the navigation buttons and press OK (Middle button).

The screen displays the following choices:

>	H	A	N	D	L	E	
	W	I	N	D	O	W	
	C	A	R	D			

	O	C	C		S	W	
	O	C	C	U	P	C	Y
	L		T	°	O	C	C
	R	E	T	U	R	N	

The names are self-explanatory, however it should be noted that **OCCUPCY** corresponds to an Occupancy sensor EnOcean (EEP A5-07-01) while **L T°OCC** corresponds to a EnOcean **L**uminosity, **T**emperature and **OCC**upancy sensor (EEP-A5 08-0X) of which only the presence information is used.

4.3.4) Select the desired sensor with the navigation buttons and press OK (Middle button). The screen displays the following choices:

>	0	1		H	A	N	D
	0	2		S	W	I	N
	0	3		C	A	R	D
	0	4		O	C	S	W
	0	5		O	C	C	
	0	6		L	T	O	C
	0	7		-	-	-	-
	0	8		-	-	-	-
	0	9		-	-	-	-
	1	0		-	-	-	-
	R	E	T	U	R	N	

Once selected, the indications are more compact. Data appears in this last table in the same order as the selection menu.

Note that WINDOWS is represented by SWIN (Sensor for **W**INdow)

4.3.5) Select the sensor to pair with, with the navigation buttons and press OK (Middle button) The screen displays the following choices:

>	L	E	A	R	N		
	V	I	E	W		I	D
	E	R	A	S	E		
	R	E	T	U	R	N	

4.3.6) Select "**LEARN**" and press OK (Middle button) to start learning.

The screen displays the following choices:

W	A	T	I	N	G		
T	E	L	E	G	R	A	M

During the display of "**WAITING TELEGRAM**" press the EnOcean device learning key or activate the EnOcean switch or handle. When learning is completed, the screen displays the channel number and the ID number of the sensor.

C	H		X	X			
X	X	X	X	X	X	X	X

It is then necessary to confirm or cancel the pairing after checking this serial number.

4.3.7) Select "SAVE" and press OK (Middle button) to record learning

>	S	A	V	E			
	C	A	N	C	E	L	

OK (Middle button) and the following confirmation message is displayed

S	A	V	E	D			

The screen returns to sensors list and other sensor can be added.

4.3.8) Return to the main menu.

		1	➔	F	A	N	
		2		T	E	M	P
>		3		E	C	O	
		4		C	O	2	
		5		V	O	C	
		6		R	A	D	N
		7		P	A	R	T
		8		O	3		
	R	E	T	U	R	N	

4.4. CO2

4.4.1) Select "**CO2**" with the navigation buttons and press OK (Middle button).
The screen displays the following message:

>	L	E	A	R	N		
	V	I	E	W		I	D
	E	R	A	S	E		
	R	E	T	U	R	N	

Please note that the term CO2 corresponds to a 4BS EEP Telegram: A5-09-04 which indicates CO2, humidity and temperature values. Pairing must be done with an actuator or a display who understands this telegram. Ventilation (FAN) control is usually sufficient and the pairing CO2 and VOC are superfluous unless you want to display air quality.

4.4.2) Select "**LEARN**" and press OK (Middle button) to start learning
The screen displays the following message:

S	E	N	D	I	N	G	
L	E	A	R	N		M	S

4.4.3) After 30 seconds of learning message or action on OK button (Middle button) the screen returns to the original list to continue learning potential measurement telegrams.

		1	➔	F	A	N	
		2		T	E	M	P
>		3		E	C	O	
		4	➔	C	O	2	
		5		V	O	C	
		6		R	A	D	N
		7		P	A	R	T
		8		O	3		
	R	E	T	U	R	N	

4.5. VOC

4.5.1) Select "**VOC**" with the navigation buttons and press OK (Middle button).
The screen displays the following message:

>	L	E	A	R	N		
	V	I	E	W		I	D
	E	R	A	S	E		
	R	E	T	U	R	N	

Please note that the term VOC corresponds to a 4BS EEP Telegram: A5-09-05 indicates VOC value. Pairing must be done with an actuator or a display who understands this telegram. Ventilation (FAN) control is usually sufficient and the pairing CO2 and VOC is superfluous unless you want to display air quality.

4.5.2) Select "**LEARN**" and press OK (Middle button) to start learning
The screen displays the following message:

S	E	N	D	I	N	G	
L	E	A	R	N		M	S

Continue as above if annexes probes are connected to the E4000 probe (Radon, particles, ozone).
 Note that the "FAN" ventilation control includes annexes probes.
 It is only necessary to continue the pairing for annexes probes to send their measured values.

Deletion of learning

EnOcean links between devices and the E4000 probe can be deleted as follows:
 The E4000 probe always emits telegrams, the de pairing must be performed at the actuator side, controller or gateway.
 Refer to the EnOcean devices technical documentation involved.

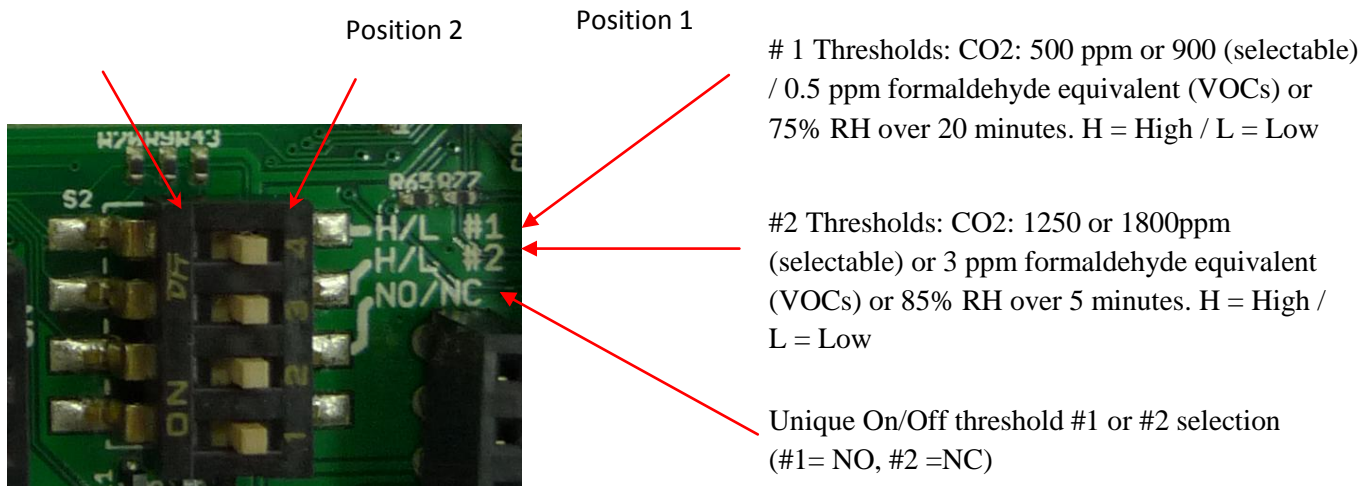
4.5.3) After learning or action on the OK button (Middle button) the screen returns to the original list to continue learning potential measurement telegrams.

		1	➔	F	A	N	
		2		T	E	M	P
		3		E	C	O	
		4	➔	C	O	2	
>		5	➔	V	O	C	
		6		R	A	D	N
		7		P	A	R	T
		8		O	3		
	R	E	T	U	R	N	

5. Probe Setting

5.1. Ventilation thresholds setting

EnOcean ventilation commands operate based on CO₂, VOCs and RH parameterized thresholds by three micro switches:



If the actuator is an On/Off type, the 4 triggering thresholds are those selectable as per here above. If one of the measures overpasses one of the thresholds, the ventilation is trigged ON. In this case, hystereses are: CO₂: 100 ppm, VOC: 10% of the formaldehyde threshold equivalent, RH: 10% of the threshold.

If the actuator is continuous, please refer to the 0-10V output because the algorithm is the same one. See <http://www.nano-sense.com/Docs/UK/E4000/E4000-Analog-option.pdf>

The continuous command is a mix of CO₂, VOC and humidity (with an OR function: the most significant prevailing over others). Only the micro switch #1 can set the ventilation speed. There is always a minimum of 10% ventilation for the building health.

5.2. Dimming setting

The E4000 probe can be used to control HVAC type ventilation, dimmable or on / off with two-speed. To be compatible with most dimmers actuators, you shall configure three parameters: the long key press time (time before the order is taken into account), time to go from 0% to 100%, and the number of steps to go from 0 to 100%.

Default setting is:

- long key press time: 1 second (L PRESS)
- Time to dim from 0% to 100%: 6 seconds (DIM TIM)
- Number of steps: 7 (# STEPS)

It is possible to change this setting as follows:

	R	S	4	8	5		
	E	N	O	C	E	A	N
>	S	E	T	T	I	N	G
	E	X	I	T			

5.1.1) From the main menu, select "SETTING" and press OK (Middle button).
The screen displays the following choices:

>	S	T	E	P	S		
	T	E	M	P			
	R	E	P	E	A	T	
	R	E	T	U	R	N	

5.1.2) Then Select "STEPS" and press OK (Middle button).
The screen displays the following choices:

>	L		P	R	E	S	S
	D	I	M		T	I	M
	#	S	T	E	P	S	
	R	E	T	U	R	N	

5.1.3) After selecting the parameter to modify, the screen displays the data to modify with buttons '-' (left button) and '+' (right button). Validation by pressing OK (Middle button)

Setting of the Long Press "L PRESS" (possible values from 0.00 to 1.00)

L	P	:		X	.	X	X
<	-	-	O	K	-	-	>

Setting of "DIM TIM" (possible values from 0.00 to 6.00)

D	T	:		X	.	X	X
<	-	-	O	K	-	-	>

Setting of "#STEPS" (possible values from 1 to 255)

S	T	:		X	X	X	
<	-	-	O	K	-	-	>

The OK button allows switching to the saving parameters screen.

5.1.4) Select "SAVE" and press OK (Middle button) to save the setting

>	S	A	V	E			
	C	A	N	C	E	L	

Press OK (Middle button) and the following confirmation message is displayed.

S	A	V	E	D			

The screen returns to the list of parameters (step 5.1.2).

5.1.5) Comeback to the main menu

	R	S	4	8	5		
>	E	N	O	C	E	A	N
	S	E	T	T	I	N	G

	E	X	I	T			
--	---	---	---	---	--	--	--

5.3. Temperature setting

The E4000 probe can be used as temperature sensor and control heating and cooling according to set points.

The temperature control by the E4000 probe benefits from its self-adaptive PID function.

No derogation from those from those set points is permitted and a control panel cannot be associated with the E4000 probe (except in gateway mode).

This configuration is more suitable for facilities where the operator does not want occupants to act on the temperature setting.

The heater default setting is 20°C (18°C for ECO mode) and 25°C (27°C for ECO mode) for air conditioning but it is possible to change this setting as follows.

	R	S	4	8	5		
	E	N	O	C	E	A	N
>	S	E	T	T	I	N	G
	E	X	I	T			

5.2.1) From the main menu, select "SETTING" and press OK (central button).

The screen displays the following choices:

	S	T	E	P	S		
>	T	E	M	P			
	R	E	P	E	A	T	
	R	E	T	U	R	N	

5.2.2) Then select "TEMP" and press OK (Middle button).

The screen displays the following choices:

>	H	E	A	T	I	N	G
	C	O	O	L	I	N	G
	R	E	T	U	R	N	

5.2.3) Select "**HEATING**" or "**COOLING**" to determine the temperature of heating or cooling setpoint and press OK (Middle button).

The screen displays the following choices:

>	C	O	N	F	O	R	T
	E	C	O	N	O	M	Y
	R	E	T	U	R	N	

5.2.4) Select "**CONFORT**" or "**ECONOMY**" and press OK (Middle button).

The screen displays the following choices:

	2	0	.	0	°	C	
	6	8	.	0	°	F	
	R	E	T	U	R	N	

5.2.5) Select °C or °F, press OK (Middle button) and adjust the temperature with + and - and then confirm by pressing (Middle button).

	2	0	.	1	°	C	
<	-	-	O	K	-	-	>

The economic mode value temperature set point is limited to the one of the comfort mode. Therefore the comfort temperature must be set first.

Beware the temperature setting is limited to 5 ° C between heating and cooling (comfort zone). If it becomes impossible to increase the heating temperature set point, come back to the cooling set point and increase the value.

5.2.6) Comeback to the main menu.

	R	S	4	8	5		
>	E	N	O	C	E	A	N
	S	E	T	T	I	N	G
	E	X	I	T			

5.4. Repeater setting

The E4000 probe can be used as repeater of EnOcean equipment. To do this, the repeater shall be activated via the menu. The repeat mode used by the probe is mode 2, ie only original and already repeated once telegrams will be repeated.

	R	S	4	8	5		
	E	N	O	C	E	A	N
>	S	E	T	T	I	N	G
	E	X	I	T			

5.3.1) From the main menu, select "**SETTING**" and press OK (Middle button). The screen displays the following choices:

	S	T	E	P	S		
	T	E	M	P			
>	R	E	P	E	A	T	
	R	E	T	U	R	N	

5.3.2) Then select "**REPEAT**" and press OK (Middle button). The screen displays the following choices:

	R	E	P	E	A	T	
>	N	O					
	R	E	T	U	R	N	

The message displayed is 'NO' if the repeater is idle and "YES" otherwise.

To change the configuration, select the row showing the status of the repeater and press OK (Middle button)

5.3.3) Then select "**YES**" or "**NO**" to enable / disable the repeater and press OK (Middle button).

>	Y	E	S				
	N	O					

5.3.4) Select "**SAVE**" and press OK (Middle button) to save the setting

>	S	A	V	E			
	C	A	N	C	E	L	

Press **OK** (Middle button) and the following confirmation message is displayed.

S	A	V	E	D			

The screen returns to the list of parameters (step 5.3.2).

5.3.5) Comeback to the main menu

	R	S	4	8	5		
>	E	N	O	C	E	A	N

	S	E	T	T	I	N	G
	E	X	I	T			

5.5. Modbus

The E4000 motherboard has an embedded RS485 Modbus port.

When there is a daughter board (wired or wireless EnOcean Bus) this port is configured as a master and can therefore interrogate annex Probes like Radon, Particles and ozone.

RS485 annex Probes can be connected to the E4000 probe which will perform the gateway of measures and controls to EnOcean. However, it is necessary that the probe E4000 knows the address of the probes in order to interrogate them.

Each sensor has a rotary switch address from 1 to 10 (with zero to 10)

In order to use those probes independently from the E4000 probe in a denser RS485 network, the addresses have ranges by type:

- Radon probe address from 1 to 10
- Particles mater probe (PM1, PM2.5, PM10) address from 11 to 20
- Ozone probe address from 21 to 30

An E4000 probe can only use one RS485 annex probe of each type.

At power ON, the E4000 probe automatically scan RS485 potential addresses of annex probes (1 to 30).

The below procedure is not necessary but it can control that annex probes are well recognized.

5.4.1) Come back to the main menu.

>	R	S	4	8	5		
	E	N	O	C	E	A	N
	E	X	I	T			

5.4.2) Select "485" and press OK (Middle button).

The screen displays the following choices.

>	S	C	A	N			
	R	E	T	U	R	N	

5.4.3) Select "SCAN" and press OK (Middle button) to start addresses search.

The screen displays the following choices.

A	D	D	:		1		
0		S	L	A	V	E	

The questioned addresses will scroll and the number of annex probes recognized will increment in the second line (SLAVE).

ANNEX 1

RORG	A5	4BS Telegram
FUNC	09	Gas Sensor
TYPE	05	VOC Sensor

Status: Approved Aug 16, 2011

Offset	Size	Bitrange	Data	ShortCut	Description	Valid Range	Scale	Unit
0	16	DB3.7...DB2.0	VOC	Conc	VOC concentration	0 .. 65535	0 .. 65535	ppb
16	8	DB1.7...DB1.0	VOC ID*	VOC ID	VOC identification	0..255	See annex 1	
24	4	DB0.7...DB0.4						
28	1	DB0.3	LRN bit	LRNB	LRN Bit	Enum:		
						0 : Teach-in telegram		
						1 : Data telegram		
29	1	DB0.2	Not Used (=0)					
30	2	DB0.1 ... DB0.0	Scale Multiplier	SCM	Scale Multiplier	Enum:		
						0: 0.01		
						1: 0.1		
						2: 1		
						3: 10		

Annex 1 list of VOC

ID number	VOC ID
0	VOCT (total)
1	Formaldehyde
2	Benzene
3	Styrene
4	Toluene
5	Tetrachloroethylene
6	Xylene
7	n-Hexane
8	n-Octane
9	Cyclopentane
10	Methanol
11	Ethanol
12	1-Pentanol
13	Acetone
14	ethylene Oxide
15	Acetaldehyde ue
16	Acetic Acid
17	Propionice Acid
18	Valeric Acid
19	Butyric Acid
20	Ammoniac
22	Hydrogen Sulfide
23	Dimethylsulfide
24	2-Butanol (butyl Alcohol)
25	2-Methylpropanol
26	Diethyl ether
.....
.....
.....
255	ozone

RORG	A5	4BS Telegram
FUNC	09	Gas Sensor
TYPE	06	RADON

Status: Approved Aug 16, 2011

Offset	Size	Bitrange	Data	ShortCut	Description	Valid Range	Scale	Unit
0	10	DB3.7...DB2.6	Radon	Act	Radon activity	0 .. 1023	0 .. 1023	Bq/m ³
10	18	DB2.5...DB0.4						
28	1	DB0.3	LRN bit	LRNB	LRN Bit	Enum: 0 : Teach-in telegram 1 : Data telegram		
29	3	DB0.2...DB0.0	Not Used (=0)					

RORG	A5	4BS Telegram
FUNC	09	Gas Sensor
TYPE	07	Particles

Status: Approved Aug 16, 2011

Offset	Size	Bitrange	Data	ShortCut	Description	Valid Range	Scale	Unit
0	9	DB3.7...DB2.7	Particles	Part	Dust < 10µm (PM10)	0 .. 511	0..511	µg/m3
9	9	DB2.6...DB1.6	Particles	Part	Dust < 2.5µm (PM2.5)	0 .. 511	0..511	µg/m3
18	9	DB1.5...DB0.5	Particles	Part	Dust < 1.0µm (PM1)	0 .. 511	0..511	µg/m3
27	1	DB0.4						
28	1	DB0.3	LRN bit	LRNB	LRN Bit	Enum: 0 : Teach-in telegram 1 : Data telegram		
29	1	DB0.2				0/1 : PM10 active (*)		
30	1	DB0.1				0/1 : PM2.5 active (*)		
31	1	DB0.0				0/1 : PM1 active (*)		

E4000 air quality probe setting in EnOcean sensor mode

