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EP5000E air quality probe Installation manual

Ver	Date	Modification / Update
V1	16/12/2019	Initial Version
V2	23/04/2021	Update
V3	09/07/2021	Disassembling the front panel
V4	10/10/2021	Add recommendations and warranty

Summary

1. Security


WARNING
Danger of death, risk of electric shock and fire!
The installation should only be undertaken by a qualified electrician!

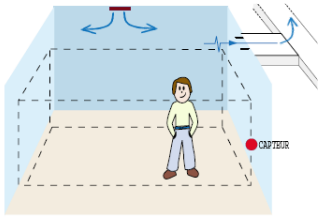
To apply for correct bus and power cables and to activate the device, comply with the state of the art and standards.

Any intervention or modification to the device will invalidate any warranty claim.

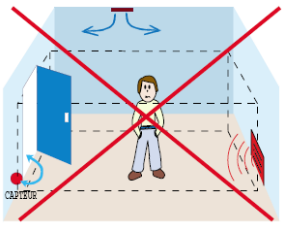
• Do not use this probe in environments with regular exposure to silicon vapors (HMDS) because this gradually alters the sensitivity of the VOC sensor.
• Do not use the sensors for measuring gas content relating to safety!
• Use the probe only with secured low voltages!

2. Positioning

The position of the probe is crucial vis-à-vis efficiency and energy savings for ventilation, heating and cooling.

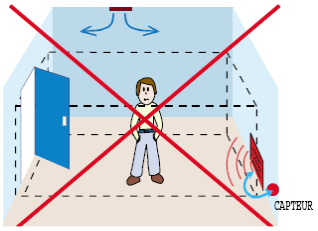


• The probe is designed to ensure air quality; it must be placed in the area of occupancy of the premise served by outlet vents, on a wall at eyes level (breathing human level, between 1.5 and 1.8m for WELL V2 compliance) and at distance from heater and Air Cond.



• Avoid drafts (near openings, blowing air, doors, outlet vents) and dead zones (niche, shelves and curtains). 1m from doors, ventilation and areas where an occupant can exhale directly on the probe for WELL V2 compliance.

• Avoid orthogonal walls (corners of room in particular)



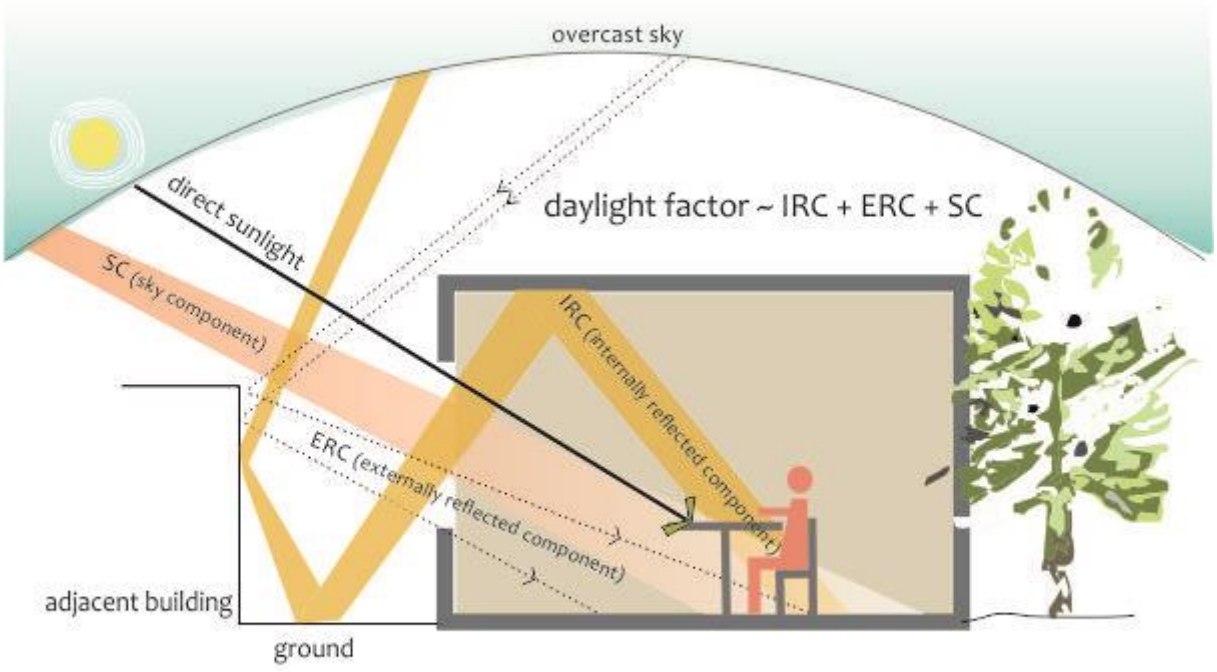
• Avoid heat sources and the proximity of occupants (radius of 1 m from workstation).

• Position the probe vertically on a wall or partition.
This device is not intended for installation in duct or ceilings.

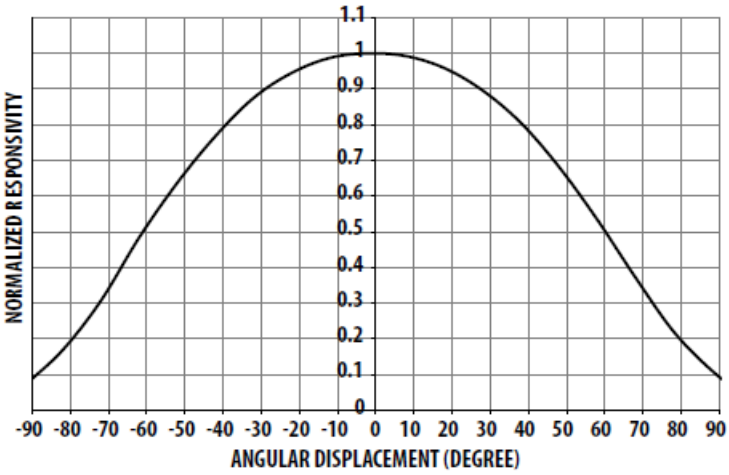
• Avoid direct exposure to sunlight. Consider all seasons sun positions

• The measurement of luminous intensity is mainly intended for the measurement of scattered light. This is what corresponds to the perception of our eyes. The positioning of the probe must take into account the quality of the desired measurement.

The following graph shows how the different contributions of natural light combine without even taking into account the generally zenithal artificial lighting:



Consideration should also be given to the receptivity of the light sensor which is mounted vertically similar to our eyes:



Any work not in accordance with this documentation or changes to the device will invalidate all warranty claims.

3. Disassembling the front panel

The front panel is clipped on the apparatus.
Put the probe on a table, the front glass facing the table (connector up)
With your fingernails or your finger move away one clip of the front panel peripheral from the apparatus and pull the apparatus up.
Do not spread the outline too far and do not exert pressure on the glass with your hand or other means as this may disassemble the front panel.

4. Flush mounting

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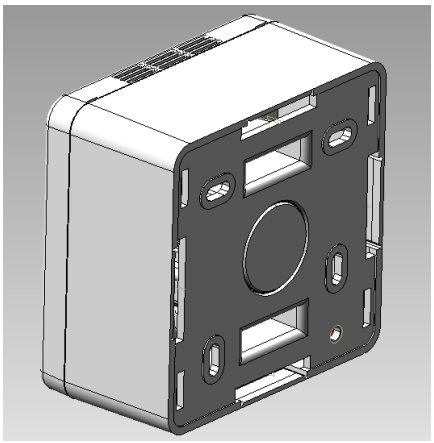
Use the multi material backbox provided or an airtight insulated backbox with a waterproofing membrane through which the sheath passes. If the backbox passes through the sealing plane, seal between the backbox and the partition with a specific VOC free and silicone free sealant. If ordering the backbox separately:

- Make sure that the backbox doesn't contain Silicone.
- The internal depth of the case must be at least 50mm.
- The internal diameter (about 64mm) shall have a 40x40mm space free up to the bottom)
- The space between screws shall be 60mm
- The height of the screws heads shall be 2mm max)

5. Surface box mounting (renovation)

Use the specific wall surface box (To be ordered separately).



This box has 4 pre-cut cable passages (one on each side) for wiring under trunking.
In case of a recessed cable, the bottom of the box has a pre-cut central pad.

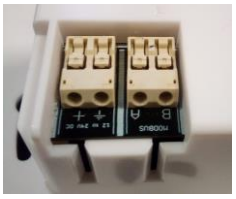
Fix the box to the wall with four screws, checking the direction (arrow inside the box indicating the "UP" side)

Fix the probe into the box

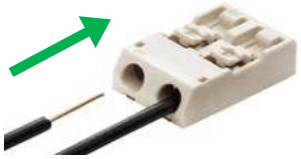
6. Wiring

Be careful, wiring must be sealed. Incoming air, even slight, would seriously jam the temperature, humidity and air quality measures.
When the switchboard is located in the heated volume: caulk arrivals between cables and ducts at the switchboard level.
When the switchboard is out of the heated volume, caulk between cables and ducts before entering the heated volume. A sealing plug must also be placed between duct and cable reaching the EP5000 probe to prevent air entry.

When the sealing of the duct is not possible, use a specific sealant without silicone and VOC.
In case of use of electrical backbox, select an airtight case with sealing membrane from which the duct passes through. If the case crosses through the sealing plane (plasterboard), seal between the casing and panel with a special sealant without silicone and VOC.

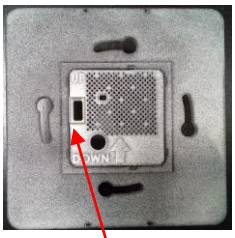


Connectors are specified for rigid cable 18 to 24 AWG (1 to 0.5mm dia.) or twisted 20 to 22 AWG (0.8 to 0.65mm dia.)
The connectors accept two 0.8mm cables on the same terminal in order to chain several sensors. Beware of line losses, a 0.8mm cable has a resistance of 21Ω per Km.



7. Installation

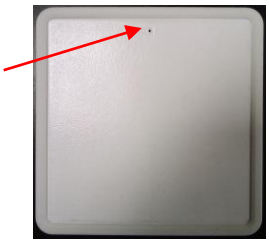
It is recommended to install the probe at the end of the work (after painting and using silicone-based products).
Connect the ModBus and the 24V DC Power Supply pair cables on the terminal block on the back of the product. Pay attention to marking: Modbus A & B and power supply polarity.



Just push the stripped ends (flexible or rigid) into the connector. In case of a multi-strand cable, make sure to well twist them before inserting them. In case of difficulty, push the release tab. Respect the polarity (non-destructive).

Make sure to respect the Up marking otherwise the temperature and humidity measurement will be jammed.
Screw the plate on the backbox.
Plug the front panel onto the plate. Pay attention to the position of the connector in the back of the front plate.

If well mounted, the transparent window of the light sensor shall be on top middle.



8. Power supply

The power supply must be continuous (DC) and between 12 and 32V (24V nominal).

9. Power on

Few seconds after power-up, all LEDs will be activated individually for a visual test. At the end of the cycle, failure message made of blink between orange and red LED may appear during few seconds, the time to interrogate all sensors

Then, the blue LED shall "breathes" if the air quality is good enough.

The start-up cycle includes built in tests and visual checks of LEDs.

The cycle lasts about **one minute** in total.

LEDs indicate faults as follows:

LED code on the front panel	Identification #	Defective FRU
No LED active	NA	Power supply failure suspected or probe power supply board
Red LED on for 5 seconds		
Followed by a yellow flash	1	Front panel board.
Followed by 2 yellow flashes	2	Single band CO2 sensor module.
Followed by 3 yellow flashes	3	Dual band CO2 sensor module
Followed by 4 yellow flashes	4	VOC sensor module
Followed by 5 yellow flashes	5	Motherboard
Followed by 6 yellow flashes	6	Interconnection board
Followed by 7 yellow flashes	7	Particle sensor board
Followed by 8 yellow flashes	8	Power supply board
Red LED blinking	9	Multiple failures
Alternation Red Blue	10	Perishable sensor reaching the end of life.
All LEDs blinking	11	No communication between front panel and probe. (after 30 seconds)

10. Commissioning

The NFC is used for commissioning (See commissioning and App manuals)

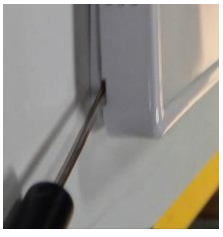
11. Removing the front panel of an installed probe

There are 4 side recess.

Insert a small screwdriver head horizontally by 1mm into one recess avoiding to damage the wall.

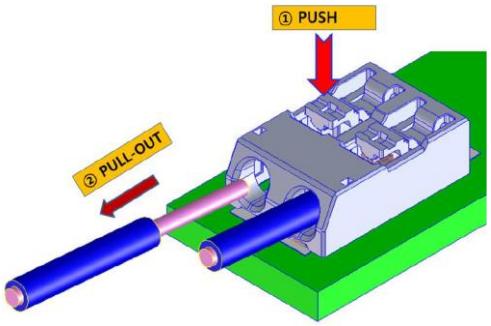
Pull the front panel 2mm from the wall and push the screw driver deeper. (between 2 plastic parts)

Move the screwdriver towards the middle of the side until the front panel unclips from the device.



Be careful not to fall the panel down as the tempered glass may break apart.

12. Disconnection



13. Recommendations

The EP50000 probe guarantees you precise measurements for years to come, provided you give it some attention ...

- Do not install your probe near sources of alcohol, gasoline, fuel oil, lubricants, paint or chemicals. The VOC sensor would be contaminated.
- Do not spill aerosol products such as deodorants, perfumes, paints, lubricants, etc. near the probe.
- Avoid contact or proximity with silicone-based materials.
- Do not use detergent or solvent to clean the probe, chemicals can cause sensor failure by contaminating or damaging it temporarily or permanently.
- Do not immerse or spray any liquid in the openings, this could permanently damage the probe.
- Do not attempt to expect an accurate VOC measurement immediately after exposure to high concentration, the sensor requires time to recover and perform to its full potential.

14. Warranty

This probe was manufactured to high quality standards. However, it can happen that it presents a defect or a failure despite the numerous tests to which it has been subjected. This device is guaranteed against any manufacturing or material defect within the limits of the following provisions:

- The warranty is strictly limited to the exchange or repair in the factory of parts recognized as defective, after examination and control, to the exclusion of any other compensation.
- The warranty period, offered by the manufacturer, is one year and begins to run from the date of purchase.
- It is only effective if the device has been used in accordance with the installation instructions, recommendations and good practice.
- Are excluded from the guarantee:
    - Damage resulting from abnormal conditions of use.
    - Damage caused by shocks or excessive mechanical forces,
    - Damage or accidents resulting from negligence or resulting from a transformation or - transformation attempted of the device.
    - Damage due to disassembly and improper reassembly of the probe.
- The warranty is only valid for devices that are returned to the manufacturer's address.
- Interventions under the guarantee cannot have the effect of extending the duration of the guarantee.
- The provisions of this guarantee are not exclusive of the benefit, for the benefit of the purchaser, of the legal guarantee for defects and latent defects which applies in any event.