

Using an Ellab USB Connector with the Vaisala H2O2 Sensor



The Ellab 4-20 mA USB plug (ordering code: 25106003) is ideal for connecting any analogue sensor to the E-Val™ Pro thermocouple system. In this Application News, we will focus on the Vaisala PEROXCAP H2O2 sensor*, which has been found to be highly appropriate for this particular application.

Background

Vaporized hydrogen peroxide is used for bio-decontamination in several applications from healthcare and pharmaceuticals to the food and beverage industry. Vaporized hydrogen peroxide is an easy-to-use and effective bio-decontaminating agent that destroys the full spectrum of biological contaminants (including micro-organisms). Bio-decontamination with vaporized hydrogen peroxide is a low-temperature, environmentally friendly process that leaves no real residues, except for water vapor and oxygen. An additional benefit to this sort of sterilization, is that the bio-decontamination process can be validated.

Common vaporized H2O2 bio-decontamination applications include isolators, transfer hatches, closed restricted access barrier systems and room bio-decontamination in e.g. hospital environments, cleanrooms etc. In addition to these low concentration applications, H2O2 is also used to sterilize utensils in plasma sterilizers (high concentration).

*The Vaisala PEROXCAP H2O2 sensor must be acquired through Vaisala or a distributor of Vaisala products.

The Solution

The technical design of the Vaisala PEROXCAP H2O2 sensor incorporates two composite HUMICAP sensors, one with a catalytic layer and one without. As the catalytic layer catalyzes H2O2 from the vapor mixture, the HUMICAP sensor with this layer only senses water vapor. This provides measurements of partial water pressure, i.e. relative humidity (RH). The sensor without the catalytic layer senses both hydrogen peroxide vapor and water vapor in the air mixture. The difference between the readings from these two sensors ultimately indicate the vapor concentration of H2O2.

Main Advantages

- Using the Vaisala H2O2 sensor (or similar) Ellab is entering the expanding market for H2O2 applications
- Simple and easy connection using the 4-20 mA screw terminal plug
- Quick setup within the ValSuite software according to sensor calibration certificate
- The E-Val Pro solution offers a fast sampling rate, all the way down to 1 second – and works as a stand-alone unit, storing data in the extensive memory
- The ValSuite Pro software offers numerous report options to evaluate data – all FDA 21 CFR part 11 compliant

Learn how to connect the products on page 2

APPLICATION NEWS

Connect the Vaisala H2O2 Sensor to E-Val Pro with 4 Easy Steps:

Step 1

Connect the sensor to the cable mounted on the USB plug – and connect the USB plug to a PC. Install and use the Vaisala INSIGHT software to program the sensor using the detailed information in Vaisala manual page 28.

Please note that the pictures show PEROXCAP with an optional temperature sensor.



Step 2

Prepare and connect the 4-20 mA screw terminal plug using the black wire (live) and blue wire (ground).

Prepare and connect a 15 V / 800 mA power supply and plug (not included) using the brown wire as live – and blue & grey as ground (see Vaisala manual page 22 & 23).

The white wire remains unused unless you include the optional temperature sensor, which, in this case, will require a second 4-20 mA screw terminal USB plug.



Step 3

Connect the wired 4-20 mA screw terminal USB plug to the E-Val Pro module using either a 4 or 12-channel sensor array.

Connect the 15 V / 800 mA power supply to the mains.



Step 4

Program the 4-20 mA input signal and calibration values in the ValSuite setup using the path **E-Val Pro Hardware Settings / Setup / E-Val Pro Custom Sensor Setup** by inserting the calibration values from the sensor certificate.

