THE MAKING OF THE CONDAIR CUBE

by Christian Walser

«I was interested in how that works...»

Christian Walser,
Global Project Manager for Controls, IoT & Cloud Solutions

Tell us a little about yourself.

Christian: My name is Christian Walser, I've been with Condair Group AG for ten years and work in electronics and software development as well as product management. In my private life, I'm a father of two young children that keep me very busy (smiles).

Would you like to tell us what the Condair Cube is?

Christian: The Condair Cube is a small sensor that displays the values "humidity", "CO_2" and "temperature" which allow us to closely monitor our indoor climate. It can tell us when we should ventilate, when we need to humidify the air, and when the indoor climate is pleasant and, above all, healthy. This device can accompany us wherever we go: No matter where we are, the Condair Cube reliably informs us about the indoor climate that surrounds us. This is helpful information if we want to look after our health.

What functions does the Condair Cube offer?

Christian: Very different ones. On the one hand, we have the main screen, which permanently displays all three values. You see a number and a circle around the number, in green, yellow, or red. The color indicates which value is currently in a good, bad, or critical range.

On the other hand, you can view a graph showing how the values have developed over the last four hours. The built-in comfort diagram also provides information on whether the temperature and humidity ratio is perceived as pleasant or whether there is room for improvement.

There are also various setting options: Time, calibration, and an alarm function that emits an acoustic signal if required when a critical value develops.

The fact that the Condair Cube can be connected to a PC or an external monitor and display the measurement data live was also a very good thing. That's why it was used at the WHO Europe Indoor Air Conference. That was pretty cool.

Please tell us how the Condair Cube was invented.

Christian: At Condair, we provide solutions that protect people's health. During the coronavirus pandemic, many people were worried about becoming infected indoors.

We know from numerous study results that a healthy indoor climate has a preventive effect on the human body. Especially in relation to respiratory diseases and their transmission. If, in combination with high CO_2 levels, the humidity is too low (below 40 percent), the risk of infection increases significantly.

The three factors humidity, CO_2, and temperature must be regarded as equally important in terms of their significance for a healthy indoor climate. This is why we also work with three equally sized circles on the display.

With the Condair Cube, we wanted to create a high-quality mobile device that helps people to "see" any health-threatening indoor air pollution. Everywhere and in real-time.

Oliver Zimmermann (CEO, Condair Group AG) approached us in March 2021, and we started a small project that we developed in-house. We then developed it step by step, from the prototype to today's Condair Cube. Over time, more and more colleagues joined us, who helped us and participated with great commitment. We donate the proceeds from every Condair Cube to the development organization Green Cross.

≈condair
Humidity for a better life

Is it true that you in particular developed a lot of the Condair Cube yourself and tinkered with it a lot at home?

Christian: Yes, I did everything at home at first. I was involved in other projects at work. So during the first six months, in particular, I mainly tinkered with the Cube at home. I was interested in how it works, and how you can build it. I didn't have any children back then either, so I had more time than I do now. (laughs)

What makes the Condair Cube special for you?

Christian: The fact that we developed everything ourselves: We created the software, the design, the graphical user interface, the sensor, and the housing ourselves – all in-house. I think the result is very straightforward and well done.

> «All done in-house.»

What are you particularly proud of?

Christian: In my opinion, we achieved a lot in a very short time. Within two to three months, we had

> «...and that was a great team effort that we managed to pull off together.»

created 2000 Condair Cubes here in the laboratory in Pfaeffikon. It was somewhat spontaneous, but it worked very well. We were able to meet the high demand during the coronavirus period and it was a great team effort that we managed to pull off together.

We are proud when we see our Condair Cube in stores because it helps to make air quality visible and keep people healthy.

What challenges did you have to overcome before going into series production?

Christian: Yes, building a sensor is much more challenging than I initially assumed. I underestimated that somewhat. Especially as the Condair Cube offers three values that should come from a single sensor.

Getting this interaction to work in

such a way that they don't influence each other was very difficult. Coordinating the values was also very difficult, as the applications on an office desk, in a restaurant, or outdoors are very different.

The requirements for a sensor must be very accurate, regardless of the environment, and this is not easy to implement.

Then the color display and the special sensor require more energy due to the exact and short measuring intervals compared to a conventional simple temperature sensor that is placed on the table. This limits the battery life to four hours – and I had to do a lot of balancing to achieve this time span. But it's enough for the intended use: in the conference room, in the gym, etc. – or you can just leave it plugged into a power source.

These were the technical challenges during development. Were there also situations later on during production where you had doubts about the whole realization?

Christian: No, I never really had any doubts about that. It worked very well. The costs were sometimes challenging. We have very high

component costs, which are simply a given.

Our aim was to make it possible to take the reliable and affordable Condair Cube with you on the go. For example, when traveling by train, in a hotel, gym, or conference room. And we have achieved that.

We now produce our Condair Cube at our factory in Hamburg. Of course, our team in Pfaeffikon Schwyz will continue to keep an eye on "our baby".

And what happens next?

Christian: With the Condair Cube, we have developed a modern, mobile, user-friendly indoor air sensor of a very high standard. A healthy indoor climate is important for all of us every day – and not just during a virus pandemic.

With our product, users can easily get a "picture" of the air quality themselves at any time. They can then take action if necessary. Anyone interested can purchase the Condair Cube online.

We would like to take this opportunity to thank Christian Walser for his great commitment to the development and production of the Condair Cube. This success story shows that anything is possible with a good deal of curiosity and passion.

We would also like to thank everyone who has worked on this special project. The Condair Cube is the best example of how we can achieve anything together – true to our credo:

We act on our Vision

We act in keeping with our vision, develop rapid solutions for our customers, are proactive in recognizing and developing solutions, and are innovative and flexible.

Condair Group, founded in 1948 and based in Switzerland is the global leader in humidification, dehumidification and evaporative cooling. Supported by science, we engineer individual, holistic solutions that customers can trust through the entire lifecycle. With optimal humidity, we increase productivity and create healthier built environments. Condair Group has production sites in Europe, North America and China, its own sales and service organizations in 23 countries, and representatives in 50 locations worldwide.

Condair AG
Gwattstrasse 17
8808 Pfäffikon SZ, Switzerland

Tel: +41 55 416 61 11
ch.info@condair.com

Interview by Vithursha Pasupathy

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