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Protecting the most sensitive equipment for high-end technology

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01 ABB's 1500 kVA PCS100 UPS-I installed at Sensirion in Stäfa

In order to ensure sensitive equipment is protected from voltage sags, a continuous power supply must be maintained. External factors, such as a faulty utility grid, increase power disruptions, creating unnecessary production downtime. Ultimately this creates loss in revenue to a business. Based in Switzerland, Sensirion, a leading sensor manufacturer was plagued with this power quality problem. ABB provided a 1500 kVA industrial UPS (PCS100 UPS-I) to prevent these monthly voltage fluctuations, improving the power supply by 100 percent.

The area Stäfa (near the lake of Zurich and where Sensirion's headquarters are located) is known to have very short power disturbances. Contributing factors can be an inadequate utility grid or natural forces, such as weather. The most common power quality problem however is voltage sags, which accounts for more than 92 percent of all power quality events. Sensirion was suffering from monthly power failures, all between 10 ms and 2 seconds. Although this doesn't sound like much, very deep sags and short term power outages up to one second are the second most common power quality problem. These short voltage dips cause damage to sensitive equipment and increase production downtime. For Sensirion, the production of sensors, such as micro sensors their factory were making was being affected.

The utility provider was not able to improve the situation on the 50 Hz grid side, therefore Sensirion reverted back to a power protection solution already installed by ABB in 2013. This was a 150 kVA PCS100 UPS-I. However due to a higher power protection requirement, a 1500 kVA PCS100 UPS-I was installed and commissioned into the factory to cope with growing power demands. Coupled with reliable engineers from ABB who were able to provide onsite service support, the new solution a seamless transition.

The small footprint in design of the PCS100 UPS-I played a vital role in successful installation. The Sensiron factory was already built, highlighting limited space where the PCS100 UPS-I could be placed. Due to this, the function of the Failsafe Bypass had to be integrated in the external Manual Bypass. The PCS100 UPS-I was connected by cables to the main distribution instead of

busbars. Therefore, a special option of a cable connection cabinet had to be used. This flexibility created assurance for Sensirion that even though this was a unique installation, no additional expense was included. Over other solutions, ABB's PCS100 UPS-I was the only product that could cope with the available space and cooling facilities. Further advantages, beside the compact footprint of the PCS100 UPS-I, is the efficiency of the system. "In addition and based on our experience, an autonomy period of up to seven seconds (depending on the load) covers our needs totally," says Patrick Good, Infrastructure Manager at Sensirion.

The PCS100 UPS-I complied with the energy saving policy of Sensirion (long lifetime energy storage). The use of ultracapacitors instead of lead acid batteries was also favored by Sensirion. This was because ultracapacitors provide seconds of coverage for short power quality events, which was the main problem facing Sensirion. ABB offer battery options that are designed to deliver autonomy up to several minutes. However, ultracapacitors have extremely high power density and long lifetime, resulting in a very compact and low maintenance solution.

Since installation, Sensirion has seen no problems with the power supply system when manufacturing sensors, an improvement of 100 percent. Patrick further commented, "during the past two months after installation of the PCS100 UPS-I, the system was recording 18 events, where a quarter would had affected our production (due to the length and depth of the sags). This means Sensirion could avoid four total outages during that time. This ultimately increased our productivity."

About Sensirion
Sensirion is a leading sensor manufacturer, providing relative humidity sensors and flow sensor solutions with unique performance. Among a large variety of applications, the flow and humidity sensors are successfully used in medical technology, consumer electronics and the automotive industry.

Download ABB's PCS100 UPS-I brochure here.
Watch the PCS100 UPS-I product video here.

To find out more about ABB's power protection solutions:
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