



INTERVIEW on residual current technology and POWERSCOUT®

“Making gains in safety”

NürnbergMesse relies on the monitoring devices from Bender

The exhibition centre in Nuremberg features 15 exhibition halls with approximately 170,000 m² of exhibition space and 50,000 m² of open space. The nearby congress centre has an overall capacity to cater for more than 12,800 participants. Over 30,000 exhibitors and up to 1.4 million visitors participate in events organised by NürnbergMesse in Germany and abroad every year. Almost one in two exhibitors (43 %) and one in five trade visitors came from overseas in 2016.

At the SPS IPC Drives fair 2017, Europe's leading trade fair for electric automation, Bender presented the web-based software POWERSCOUT® and residual current monitoring, that is used on the trade fair exhibition ground, as part of a live demonstration.



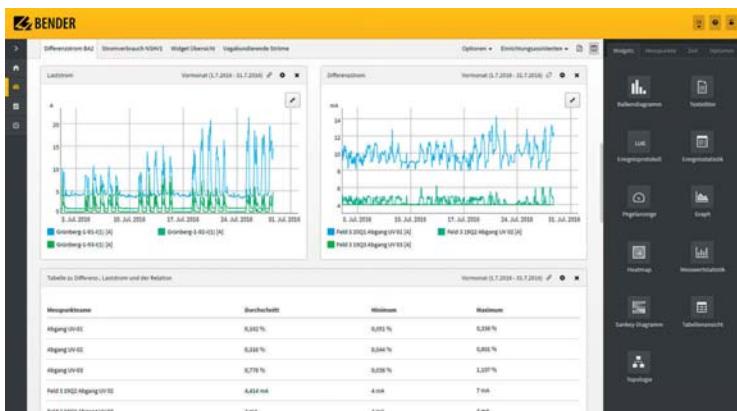
We conducted this interview with the engineer Stefan Winkelmann who has worked as Head of Technical Facility Management at NürnbergMesse for over 20 years.



At Bender's booth interested exhibition visitors could view the big screen and gain insights into the electrical installation at NürnbergMesse with POWERSCOUT®. This demonstration showed: POWERSCOUT® brings together all stored data from the measurement and monitoring devices installed on-site and creates easy-to-understand visualisations, analyses as well as user-specific reports of all important measured values. This allowed users to monitor the present status of the whole area.

Disturbances can be detected at an early stage and causes can be eliminated in a timely manner before any damage or system breakdowns occur. This continuous monitoring ensures a safe power supply and makes predictive maintenance possible for the operator. Through a combination of measuring technology and software, you can significantly simplify periodic verification.

“Safety at a very high level”



Dashboard

Mr Winkelmann, what requirements does NürnbergMesse have in terms of electrical safety?

As the Technical Facility Management department at NürnbergMesse, we look after an extensive area featuring 15 exhibition halls and different congress and office buildings. Providing our exhibitors, visitors and employees with a safe supply of power is a basic prerequisite for a successful exhibition.

To further enhance this safety, new systems have been installed at NürnbergMesse. Which ones?

We have installed residual current technology with permanent RCM measurement as a solution for the manual measurement system that has been used to date. The automated residual current report forms the basis for measurements without shutdown in line with DGUV Regulation 3. Furthermore, we decided to opt for POWERSCOUT® to enable life-long recording of all values relating to power quality.

What motivated you to set up a permanent RCM measurement?

The technical department consists of several areas such as facility service, technical facility management for in-house systems, and the building department responsible for new construction work. All three sub-areas also look after electrical engineering.

The large number of current distribution units – there are about 150 on the site – makes it almost impossible to monitor everything continuously. On top of that, you have the interference of a constant stream of people in the electrical systems and also exhibitors and visitors connecting their devices, the quality of which we cannot estimate.





Electrical installation at NürnbergMesse

►►► Due to the size and structure of the entire site, it is no longer feasible to have our technical staff conduct checks as part of routine patrols in order to stay on top of things.

What alternative solutions presented themselves prior to your decision?

The other option would have been to deploy larger numbers of staff: Assign our service partners and conclude corresponding maintenance contracts, increase our own workforce or commission a one-off assessment – those would have been the options. However, that would have meant permanently higher costs. That is why we opted for the technical variant.

"We opt for the technical variant"

Which aspects were important when it came to choosing this solution?

There are good, modern technical solutions for permanent monitoring, evaluation and documentation. You have to move with the times here. The frequency is three years for the alternative manual check. We just cannot take the risk of a new fault going unnoticed for several months.

By contrast, permanent measurement of the insulation resistance gives us almost constant confidence that the electrical system is in a safe operating condition. Disturbances can be detected at an early stage. Another plus is the comprehensive monitoring through which we can bring long-term trends and dependencies in line with other events. Legal security is also ensured through continuous recording and documentation. The system can be accessed online at any time and from anywhere.

The technical option that we are now using offers us many other benefits:

- one-off procurement costs
- monitoring 24 hours a day for 365 days of the year
- comprehensive evaluation and documentation
- immediate fault display and notification.

What experiences were you able to collect during those first few weeks and months?

Shortly after setting up the system, we actually identified a fault in our technical equipment. In an office area, three water heaters had a series defect and were generating very high levels of interference current – however, only when hot water was being used. It probably would have taken us a long time to discover this fault using the old method.

Even though manual measurements continue to run in parallel, we are increasingly focusing on the technical option. (Note: PEN bridges lead to disturbances in electrical systems in a TN-S system)

How has the implementation of the measure been viewed in practice?

In many cases, we work closely with long-standing partners and here we place particular importance on trustful and constructive cooperation. This also allows ambitious projects to be executed, with minimal or no interruption, during while measurements are carried out ongoing operation. Little effort was involved in implementing this measure.

Where do you see the differences between a new installation and the retrofitting of existing installations?

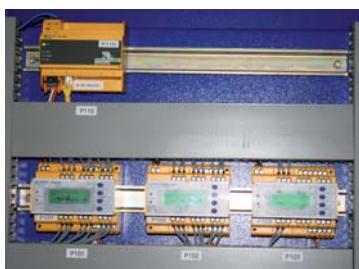
In terms of existing installations, it can be difficult to install standard current transformers in some cases. To this end, however, you now have special flexible current transformers (WF or wrap-around CTs) that can also be used subsequently for large conductors and even power rails. Bender systems are generally included in the planning of new sites and can therefore be equipped with the standard current transformers.



Expectations met – retrofitting planned

What will you decide upon for further construction phases?

The system has met all our expectations. We are therefore planning upgrades throughout the site in the near future and are accelerating our efforts in this regard. New systems will be equipped with this technology from the outset.



Is it possible to integrate third-party devices into POWERSCOUT®?

We already have a comprehensive energy management system on-site, in which more than 1,000 energy consumption meters are integrated for voltage, frequency and harmonics. This data can be used for an even more specific evaluation by POWERSCOUT® if necessary.

Do you have any other requests or suggestions for RCM products or POWERSCOUT®?

We don't have any further requests or suggestions for RCM products at present. We'll collect our findings for POWERSCOUT® along with its documentation and reports. Everything else will follow from operation over time. It may be the case that not all options have been exhausted.

Summary by Mr Winkelmann:

- NürnbergMesse already uses different visualisations in the area of facility management. With POWERSCOUT® they are continuing on their path towards safe operation.
- By combining RCM monitoring and visualisation with POWERSCOUT®, electrical safety is increased and disturbances or defects can be detected in good time. Failures and malfunctions are thus reduced to a minimum.
- We are particularly proud of receiving confirmation from the property insurer that we have always provided a very high level of safety for our employees and customers/visitors, and now we are looking for ways to make even more improvements in this area.

Mr. Winkelmann, I would like to thank you for the interesting conversation. ■

*Matthias Niedermann
Technical Office Nuremberg*



INFO

The POWERSCOUT® website can be found at:

powerscout.bender.de



You can make direct contact there to obtain your personal access.