

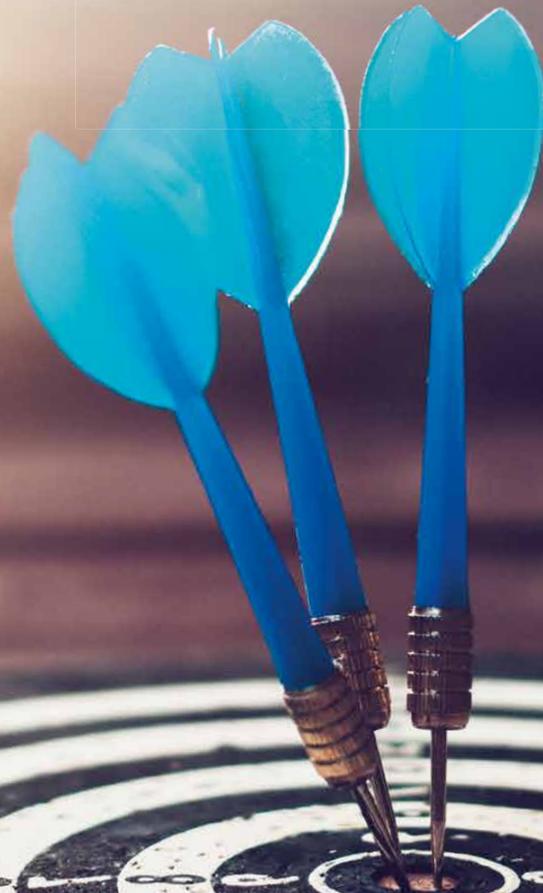
RELIABLE AGAIN AND AGAIN

Our MPD Series ensures repeatable
partial discharge measurements

*«The accuracy of PD measurements is
key in making risk assessments of your
equipment's insulation condition.»*



Caspar Steineke,
MPD Series Inventor & PD Business
Development Manager, OMICRON



How does measurement repeatability play a role in the accuracy of partial discharge (PD) measurements? We asked Caspar Steineke, one of the inventors of our MPD PD measurement and analysis technology and our current PD Business Development Manager, to explain.

Insulation status observed over time

“Periodic PD measurements offer you an actual history of the equipment’s insulation condition over time, so that you can compare measurement results, assess the risk of failure and plan timely maintenance and repair actions to prevent it,” said Caspar. “The accuracy of PD measurements is key in making these risk assessments.”

“There are many factors that can influence the accuracy of PD measurement results, but the PD measurement device itself should not be one of them. That is why built-in measurement repeatability plays a critical role in ensuring the precision of our MPD Series PD detection devices.”

Built-in reliability

“MPD PD measurement devices were designed from the start to be fully digital. We have done away with any relevant variations caused by the measurement device aging or fluctuations in temperature and ambient conditions, which often influence the measurement results,” Caspar continues.

Complete digital processing

“Built-in digital filters ensure that you always get repeatable results with any MPD measurement device when you use the same test set up

and measurement settings from the previous measurements. We can come up with an absolute charge measurement, which provides you with a very reliable and repeatable reference.” Caspar adds, “The MPD was the first PD instrument of its kind to offer this level of repeatability across all frequency ranges and time.”

Repeatability you can trust

“Measurement repeatability is particularly important in situations where you have periodic PD measurements performed on the same device under test and you want to be able to compare the results over time,” explains Caspar. “Performing tests under the same conditions is sometimes a challenge, but you can trust in the repeatability of your MPD device. Even with different MPD devices or when different engineers perform measurements, you can reliably compare the results every time.”

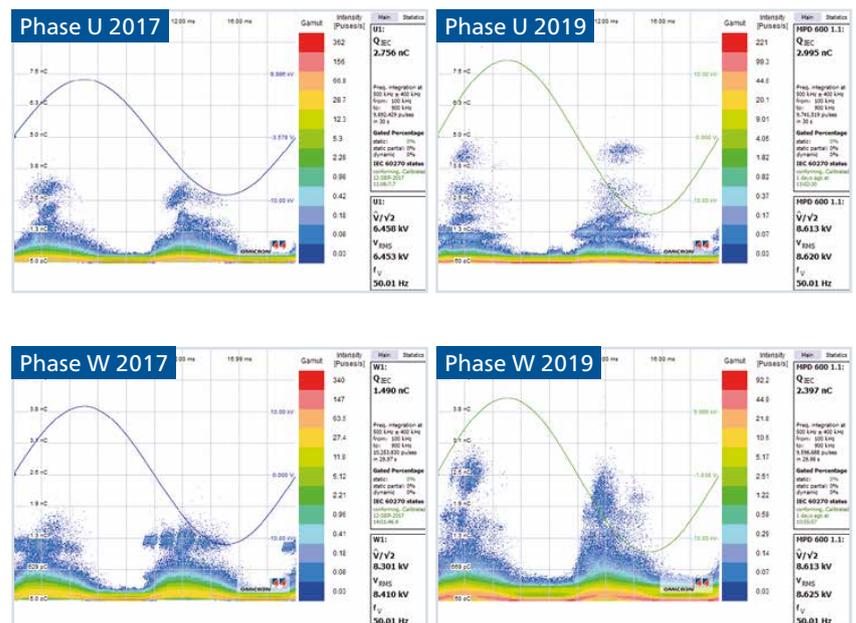
A practical example

To demonstrate the importance of PD measurement repeatability, Casper shows us a customer measurement example from the field.

“We recently assisted a customer in performing off-line PD measurements during scheduled maintenance outages in 2017 and 2019 on a 180MVA, 15 kV generator to assess the insulation condition of its stator windings,” Caspar explains.

First measurements reveal PD activity

During the first set of PD measurements performed in 2017, pronounced PD activity was detected in all phases, but with only moderate risk to the generator. To confirm these results and to track developments, periodic PD measurements were recommended every two years using an MPD 600 ▶



Similar PRPD patterns from 2017 and 2019 in Phase U and Phase W.

measurement device with the same exact test setup and measurement settings as before. "This way, the customer could be sure that any changes observed were only coming from the generator's insulation," Casper adds.

Second measurement confirms earlier results

The results of the second set of PD measurements performed in 2019 confirmed what was detected in the first set of measurements. "If you look at Phase U or Phase W, you can see that the previous and recent measurements are comparable – the PRPD pattern from 2017 is similar to the one from 2019. There is no increasing charge level, which means that the condition is OK. However, when you compare the patterns for Phase V, you can see that there is a visible increase in the charge level in 2019 over 2017. Even though the degree of hazard for the stator insulation can still be considered as moderate with no pending risk of failure, the situation should be continuously observed."

Additional measurements planned

"We recommended that the customer repeat the PD measurement during the next scheduled maintenance to determine whether there are additional changes in PD activity and act accordingly," says Caspar. "The customer can definitely rely on the fact that any differences are coming from the asset and not the measurement device itself, which is why repeatability is so important," he concludes. ■

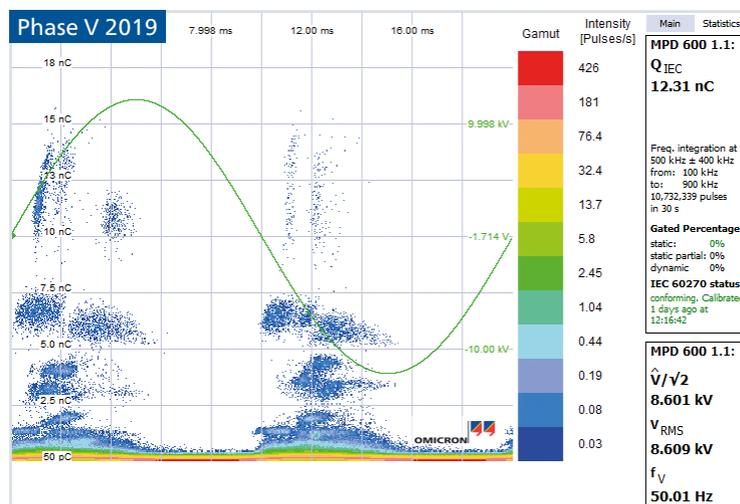
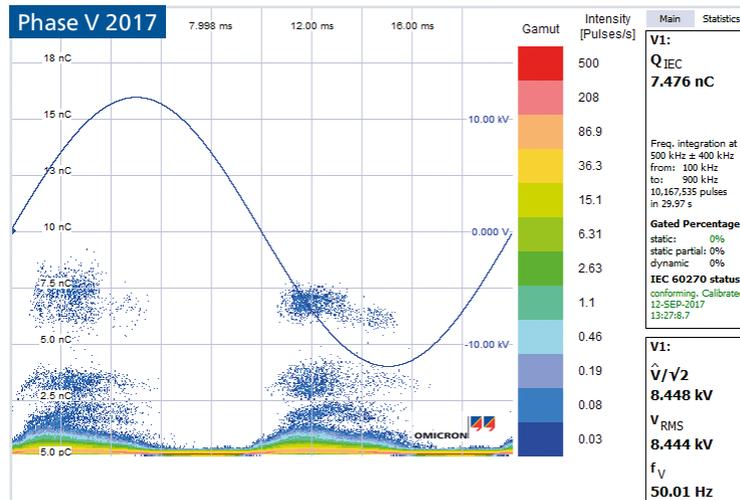
MPD 600

High-end partial discharge measuring and analysis system



- › Complete digital data processing ensures measurement repeatability
- › Galvanic isolation via fiber optic cables ensures safe operation
- › Synchronous, multi-channel measurement and gating capabilities
- › PD data stream recording and playback for later analysis
- › Advanced noise suppression for reliable PD analysis

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Visible increase in the charge level in 2019 over 2017.