

CURRENT TRANSFORMER TESTING FOR NETWORK OPERATORS

How the CT Analyzer assists network operators with current transformer testing

The CT Analyzer was specifically developed for testing current transformers and it can read all the relevant values from a current transformer within seconds. This facilitates fast and efficient on-site testing and calibration of current transformers for metering and protection purposes in the system. Network operators, who have many current transformers of various types in operation, often rely on the benefits of the CT Analyzer. We spoke to two large network operators in northern and southern Germany about their experiences with the CT Analyzer.



**«We have been relying
on the CT Analyzer
for testing current
transformers since 2005.»**



Marco Pfannenstiel,
Commissioning Engineer, Stromnetz Hamburg

**Stromnetz Hamburg
(Hamburg Electricity Network)**

“One hundred percent Hamburg”: with this as its motto, Stromnetz Hamburg (SNH) has been safely and reliably supplying power to the people, infrastructure and economy of the Free and Hanseatic City of Hamburg for over 120 years.

Marco Pfannenstiel is a Commissioning Engineer at SNH in the field of protection technology. He is responsible for the installations in SNH’s 0.4 kV, 10 kV and 110 kV networks. He also takes care of major 110 kV customers by supporting them with technical protection commissioning and maintaining their networks and power plants.

**Power, speed and variety all in one
compact device**

“We have been relying on the CT Analyzer to test current transformers since 2005,” says Marco Pfannenstiel. “We first saw the device at an OMICRON user conference and I was immediately impressed by the performance of this small, compact device.”

SNH now has five CT Analyzers, which are used to carry out current transformer tests for verifying nameplates.

“We test all types of current transformers,” explains Marco Pfannenstiel. “Including TPZ current transformers, because they’re the best choice for protection purposes. The CT Analyzer can really handle that well.”

In order to carry out the tests, OMICRON helped SNH create customized test templates that were formatted in Microsoft Excel™.

“What I find especially helpful when testing with the CT Analyzer is how compact and lightweight the device is,” says Marco Pfannenstiel. Thanks to its frequency manipulation testing method, I can even carry out accurate tests using low voltage levels. “This method is perfectly suited to the majority of our current transformers. We are very happy with the CT Analyzer,” he summarizes. ▶

Bayernwerk Netz

As the largest regional network operator in Bavaria, Bayernwerk Netz GmbH secures the energy supply in large parts of the state and also provides a comprehensive range of energy services. Patrick Lehner is a Security Inspector at Bayernwerk Netz in the Eastern Bavaria region. He carries out regular protection tests, as well as tests on voltage regulators and e-coil regulators.

Safe and accurate testing

At Bayernwerk Netz, OMICRON's universal primary testing system CPC 100 has been used for about 15 years for testing the 20 kV current and voltage transformers as well as the 110 kV combined voltage transformers. "We have always been extremely satisfied with the test results, because we are able to test all types of transformers, whether they are current or voltage transformers," explains Patrick Lehner. "The CPC 100 also enables the transformers' test via the primary side, which allows us to take another final measurement for each core."

For the past year, Patrick Lehner has also been using the CT Analyzer to test single and multi-core 20 kV current transformers. He summarizes here: "The CT Analyzer is a far lighter testing device, which makes it easier to handle. The tests are carried out more quickly after the test

setup. The device is also more user-friendly. You can tell straight away that OMICRON has focused heavily on safety and measuring accuracy during the development of the CT Analyzer." The device can test current transformers with output voltages of up to 120 V and up to an accuracy class of 0.1. This is one of the reasons why Bayernwerk Netz already has two CT Analyzer in operation.

New software makes work easier

Patrick Lehner has been working with the new CT Analyzer suite for six months. He says: "It didn't take long to get used to the new software. The clear design of the interface is a great feature that makes my work even easier." And by "work", he means specifically: "With each test step, the test setup is visible via connection diagrams, which minimizes testing errors. I am very impressed by how quickly the comprehensive tests are carried out and at the same time their evaluation is in line with the applicable standards.

"In addition, the useful assistance system within the suite was a big help in the beginning and it still is for certain issues because it provides clear and understandable explanations for all the processes within the software. I also found the device update tool to be very helpful."

«As Bayernwerk Netz is constantly striving to incorporate the latest innovations in organization and technology, the CT Analyzer was of particular interest to us.»



Patrick Lehner,
Security Inspector, Bayernwerk Netz GmbH

Patrick Lehner also thinks that some of the additional functions of the CT Analyzer suite are very user-friendly: "In order to carry out a suitable test with as much data as possible, I use the general current transformer data from the current transformer in the 'Preparation' section of the suite." The remanence test offered by the CT Analyzer is also particularly useful. "This is what I do in most instances in order to find out exactly how much residual magnetization the current transformer has."

Transformer testing – primary or secondary injection?

"After a year of comparing the CT Analyzer with the CPC 100 I have concluded that the CT Analyzer is a very good alternative for testing current transformers." But Patrick would not want to completely eliminate either of the devices when it comes to his applications. The CT Analyzer is ideal for fast and high-precision testing on current transformer parameters, accuracy, and remanence. And the CPC 100 is a versatile "power tool" for switchgears which can also be used to carry out tests with high currents (primary injection) and high test voltages. ■

CT Analyzer

- › Extremely high accuracy (typically 0.02%) allows current transformers to be tested on site up to the 0.1 accuracy class
- › Compact and lightweight device (<8 kg | 17.6 lbs)
- › Automatic assessment according to IEEE and IEC standards
- › Reduction in test time (typically < 1 min)

www.omicronenergy.com/CT-Analyzer

