

Application

When requirements change

High-voltage current transformer testing with the CT Analyzer

Planning the requirements of a substation is very complex. It is no surprise that specifications constantly change, often very quickly after the initial design of an asset has been accepted and delivered to the customer. For high-voltage current transformers (HV CTs) where there are expensive bushings and copper work, this can become challenging in terms of design and more importantly, cost. OMICRON's CT Analyzer helps determine the CT classification and can simulate various loads after a design change in no time at all.

Manufacturing companies put great effort into perfecting the manufacturing processes in order to create instruments of high accuracy and quality. This is particularly true for the production of HV CTs where manufacturers have a real challenge to ensure the accuracy and quality of such high-value equipment. Where critical specification changes are necessary, manufacturers need to provide quick solutions which create only a minimal impact on the product and its cost, preferably limiting the need to re-design the product.

Changed specifications

This scenario was encountered by a CT manufacturer, where a number of multi-tapped high-accuracy class 0.2S HV CTs had been designed, accepted and purchased by the customer who then altered the specification after it had been manufactured. The challenge for the manufacturer was how to address the customer's needs with minimal impact on the design and cost. A further complication was the requirement for

CT Analyzer — a revolution in current transformer testing

- > Highest measurement accuracy: 0.02 % / 1 min.
- > Very small and lightweight (< 8 kg / 17.4 lbs)
- > Automatic evaluation according to standards
- > Short commissioning times
- > Excellent safety: tests run at max. 120 V
- > Integration into testing routines possible



the HV CTs to undergo approval testing in an overseas independent test laboratory. The HV CTs that had already been dispatched overseas were successfully tested to the nameplate specification at the specified tap stage. Due to size and weight quite expensive shipment costs were incurred. The CTs were then returned to the manufacturer. The customer, at this point, re-defined the CT tap and VA rating.

Desired certainty

This change meant that the units, following re-design, would need to be returned to the overseas test laboratory for approval of the new settings. In order to avoid unnecessary shipment costs, and to avoid delay, the manufacturer wanted to be confident that the CTs would meet the new specification prior to re-sending to the laboratory. Undertaking traditional primary injection testing of this type of HV CT requires a powerful source and considerable time and effort to complete the required testing effectively.

Verification in 30 minutes

OMICRON was contacted by the manufacturer who wanted assistance with this testing. It was recommended to use the CT Analyzer, a fast, portable, and easy-to-use test system which provides the user with a broad range of testing options. With this equipment, it is easy to make connections, and more importantly to simulate and test the HV CTs at various simulated loads. The CT Analyzer tests helped to determine the exact classification of the CTs and to verify that the HV CTs would meet the customer's requirements. The CT manufacturer was thus able to return the HV CTs to the independent test laboratory for approval, knowing that the equipment would successfully pass.

The investigation and tests completed with the CT Analyzer took as little as 30 minutes. This would be impossible using traditional testing equipment, particularly given the location of the HV CTs and the time constraints. ❏

Tony Porrelli*Technical Support & Applications***CT Analyzer videos**

Additional videos can be found on
www.youtube.com/omicronenergy