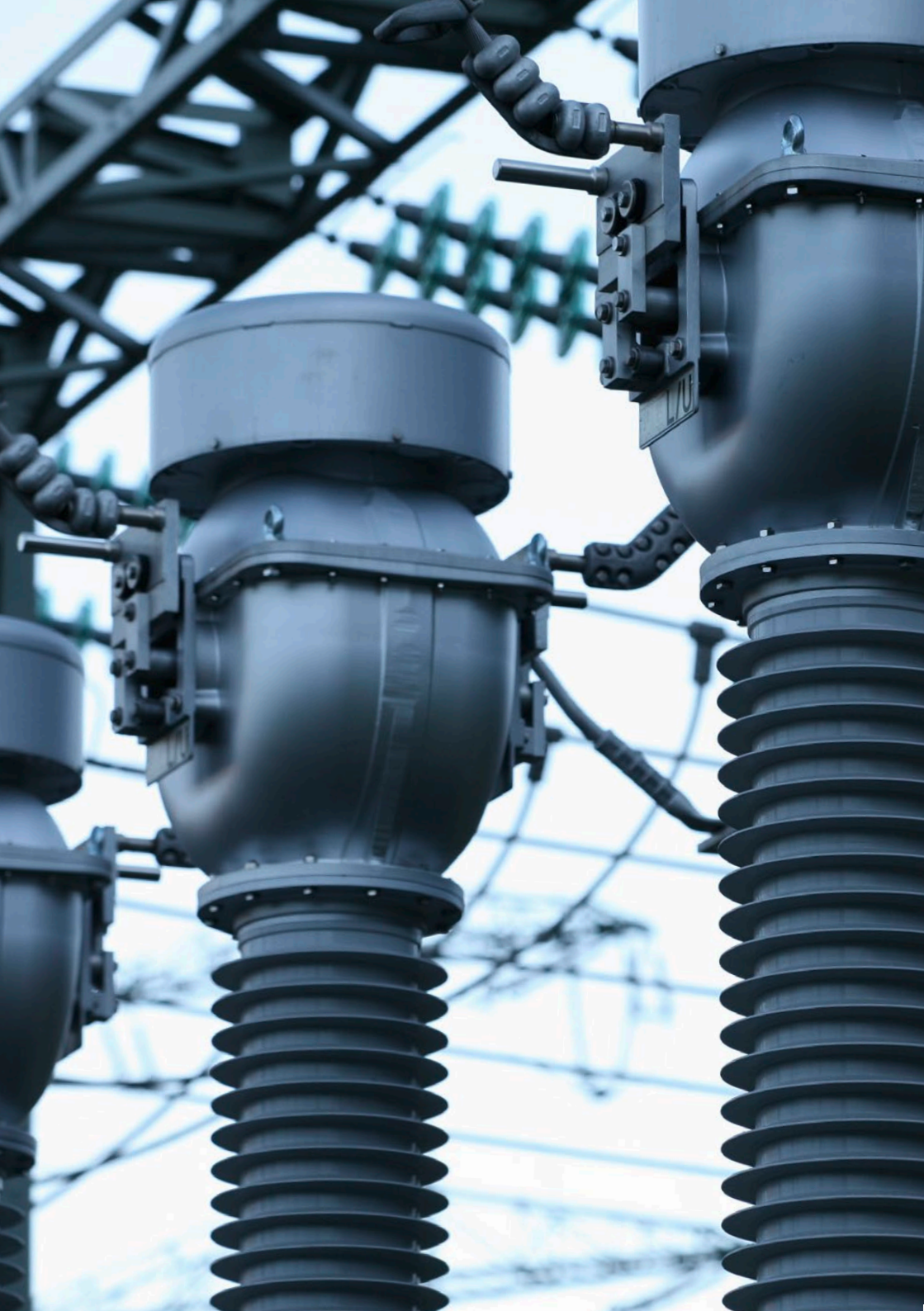
IEC 61869-2

Influences of the new standard on testing with the CT Analyzer



IEC 61869-2

The new standard for current transformer testing

The IEC 61869-2 standard (Instrument transformers – Part 2: Additional requirements for current transformers) combines two former standards:

> IEC 60044-1
> Instrument transformers – Part 1: Current transformers

> IEC 60044-6
> Instrument transformers – Part 6: Requirements for protective current transformers for transient performance

This revision was initiated to reflect the technological advances and improvements in and around current transformers and their field of application.

The CT Analyzer incorporates this standard in the new software version 4.30.

"This overview includes the most important new features with respect to the use of the CT Analyzer to test to the IEC 61869-2 standard."

Michael Freiburg, CT Analyzer Product Manager

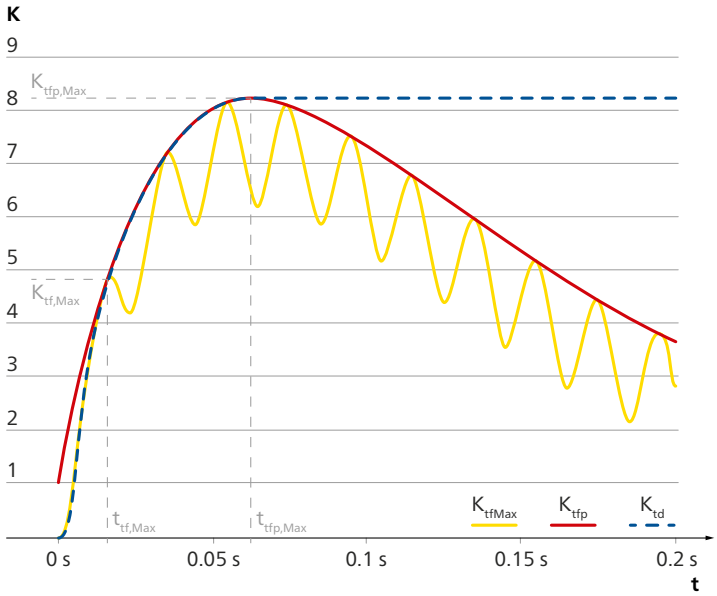
An overview of the changes

Method for calculating the transient dimensioning factor

A revised method for calculating the transient dimensioning factor (K_{td}) now also takes into account the latest protective devices, which can detect and react to faults more quickly.
For automatic reclosure (AR), special attention was focused on the transformer's saturation behavior and to remanence decay.

A more precise calculation of the current transformer's transient response in the overall system can contribute to significant optimization of the dimensioning. The size advantage resulting from this not only offers direct cost advantages for the transformer itself, it also simplifies deployments at locations where space is at a premium, for example, in gas-insulated switchgear (GIS).

IEC 61869-2 K_{td} curve



Extended load range for all measurement classes

The optional extendable load range up to 1 VA can be applied to all measurement classes with the new standard.

This results in greater consideration of the digital systems used, which present lower loads when compared with analog systems.

	IEC 60044-1 standard	IEC 61869-2 standard
Class 0.1	■	■
Class 0.2	■	■
Class 0.2S	■	■
Class 0.5	–	■
Class 0.5S	–	■
Class 1	–	■
Class 3	–	■
Class 5	–	■

Uniform measurement definitions

When recording the magnetization curve, RMS or peak values were measured, depending on the standard used. The new IEC 61869-2 standard combines these measurement definitions.

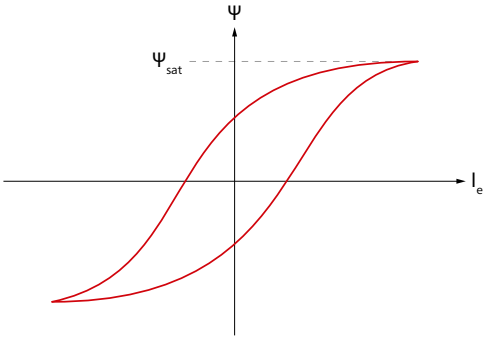
As such, measurements are now easier to perform and the risk of faults due to confusion has been reduced.

Axis	IEC 60044-1 standard	IEC 60044-6 standard	IEC 61869-2 standard
x	RMS (I_e)	Peak (I_e)	RMS (I_e)
y	RMS (U_{ct})	Avg. cal. in RMS (E.M.F.)	Avg. cal. in RMS (E.M.F.)

New definition of the maximum saturation flow

In the previous definition, the maximum saturation flow Ψ_{sat} was defined by the transition from the unsaturated to the saturated area of the magnetization characteristic curve.

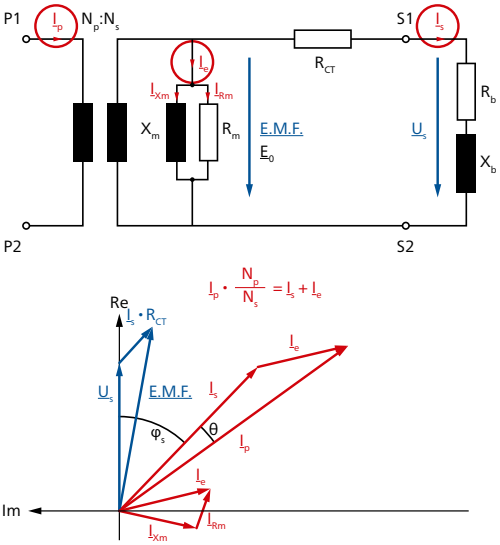
The new IEC 61869-2 standard now redefines this value shifting the reference into the saturated area. The saturation flow value, which was previously defined as too low, has therefore been corrected.



Alternative measurement method

The new standard defines an alternative method for measuring the ratio error in compliance with the measuring principle employed by the CT Analyzer.

In contrast to the direct method, this reduces the measurement time and the measuring technology required. As a result, it greatly simplifies routine measurements performed during production and maintenance work in the field.



Working with the new standard

New software version

You can download the new software version for the CT Analyzer free-of-charge in the Customer Area at www.omicronenergy.com.

A detailed description of the installation process and further details on taking measurements with the CT Analyzer in line with the new standard can be found in the CT Analyzer user manual.

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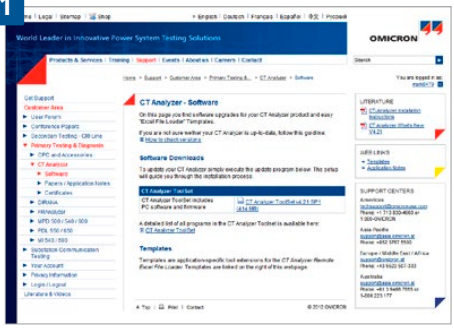

OMICRON Customer Area

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CT Analyzer user manual

Activating the standard on the CT Analyzer

Once the latest version of the CT Analyzer software has been downloaded, you can activate the new IEC 61869-2 standard in the menu.

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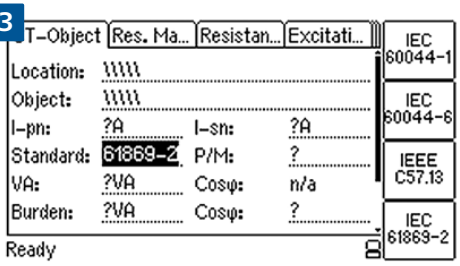

Activating the standard

OMICRON is an international company serving the electrical power industry with innovative testing and diagnostic solutions. The application of OMICRON products allows users to assess the condition of the primary and secondary equipment on their systems with complete confidence. Services offered in the area of consulting, commissioning, testing, diagnosis and training make the product range complete.

Customers in more than 150 countries rely on the company's ability to supply leading edge technology of excellent quality. Service centers on all continents provide a broad base of knowledge and extraordinary customer support. All of this together with our strong network of sales partners is what has made our company a market leader in the electrical power industry.

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