## CheckCon 3 – Software for Testing Current and Voltage Instrument Transformers

Even though which type of transformer you are testing – conventional, electronical or non-conventional, digital transformers – ZERA offers the suitable software for testing current and voltage instrument transformers in addition to the responsible hardware. Simplify the control of your test sequences, evaluation of CT/PT and management of measuring data for testing CT and PT by using *CheckCon 3*. Once defined error classes and type tables transformers under test can be summarized in charges and data can be used later on for reports or evaluations.

### Transformer Testing – *In General*

For testing instrument transformers the secondary signal from transformer under test (or digital information of non-conventional transformers) will be compared with a reference signal supplied by a standard device. The resulting error value will be displayed as ratio error and phase displacement. According to predefined criteria the transformer under test will be evaluated as „passed" or „failed" and reported. This task – starting with controlling of test sequence, ending with evaluation of transformer – can be managed by *CheckCon*.

### Definition of Transformer Types

For each type of transformer you once define all parameters for transformers under test. All relevant data as frequency, burden and standard transformer as well as the number of windings, manufacturer data and nominal power can be determined inside the *type table* and can be used later on for a test procedure.

### Definition of Error Classes

According to your guidelines e.g. IEC 60044 you can define the *error class* for the transformer under test.

All data will be stored in the CheckCon database and are available at any time. These specifications set the general conditions for future evaluation.

The *error class* contains among others the load point (%), the max. deviation (%), the max. ratio error (%) and phase displacement (min). Ratio error and phase displacement are relevant to pass the accuracy test.

### Definition of Charges

A *charge* contains all parameters, which are required for the test procedure, evaluation and test report.

Several transformers of the same type will be brought together with corresponding error class and type table in one *charge*.

### Preparation of Test Sequences

The *test sequence* includes load points, burden steps and criteria for evaluation such as percentage deviation of the test current (CT) or test voltage (PT). Additionally you could define the value for the demagnetization (CT) and the factor for frequency and burden at nominal power (PT).
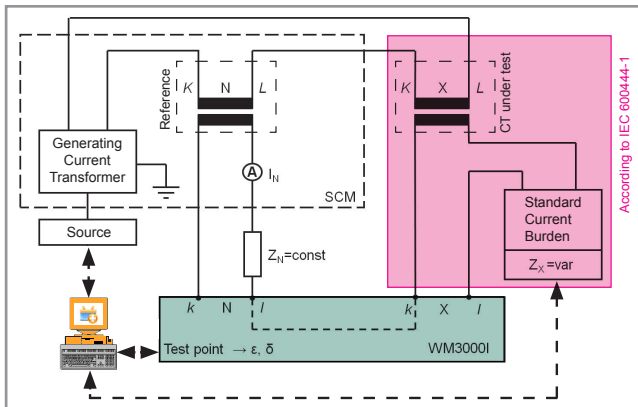
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**Preparation**



Customer data and charges

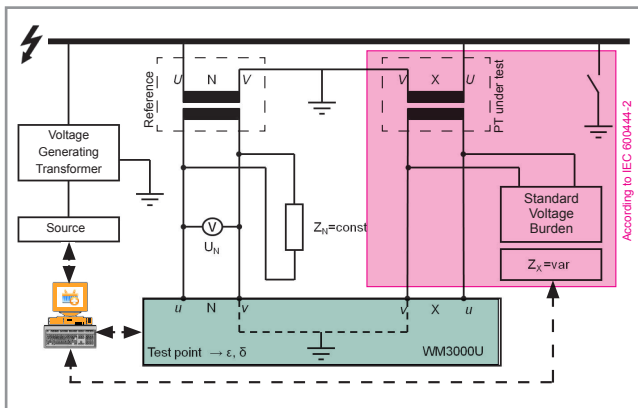Icons for quick access to the most important tasks

Summarized testing conditions of one charge

Defined error classes in the CheckCon database

## Linking of Hard- and Software



Principle diagram for example of CT testing via WM3000 I



Principle diagram for example of PT testing via WM3000 U

## Performing a Test Sequence

After proper connection of CT/PT to be tested with the measuring bridge or test system and after defining all relevant values in CheckCon you can start the test sequence.

In *automatic mode* CheckCon requests the operator to make the required settings to create a test sequence. After the procedure has been finished successfully data will be stored automatically in the CheckCon database. All data will be archived and can be used for generating test reports at any time.

For automated control in *automatic mode* it is required to integrate a PLC into the test system. With a PLC, several CT/PT under test can be tested, evaluated and reported successively. Furthermore switching from one test position to the next one will be performed automatically.

The *manual mode* contains as well the interturn-insulation test, demagnetization and accuracy test. This mode serves only for checking the connectors. Data will not be stored. In case of testing several CT/PT it is required to call up one CT/PT after another manually.

## Evaluation and Report

The test report contains the results based on evaluation (passed or failed) and all relevant transformer data. For example the property or serial no., name of the operator and important technical data of the CT/PT under test.

## CheckCon 3 *light*

The light version of the transformer testing software offers the possibility of the manual test mode (see above) and the check of conductors by enter the ratio of the transformer.

## System Requirements

Operating system: Windows 2000 or Windows 7
Interfaces: RS232

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**Test procedure and report**

Enter the load points, burden steps ...

Detailed data of CT under test

Report with evaluation



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