

ETP-2

*Recovery voltage and insulation
measuring unit*



MAIN FEATURES

- Fully automatic Recovery voltage test in all the test cycles of voltage application, discharge of the insulation and measurement acquisition.
- Automatic generation of the measured values on each test cycle graphic representation
- Total test time of 40 minutes using the time base of 100 ms.
- The connection to the transformer is guided from the computer to avoid connection errors.
- All measurement processes are automatic and the results do not depend of the user personal criteria.
- Results values are automatically corrected to a reference temperature enabling, standard results.
- Numerical and graphic presentation give the results of the following parameters:
 - Recovery Voltage
 - Raising time of the capacity
 - Insulation resistance
 - Time constant
 - Polarization Index
- The graphic curves gives very important information about the evolution of the obtained values, which makes the diagnostic of possible problems fast and easy.
- The control program allows selecting the following possibilities to perform the insulation tests:
 - HV + LV against Ground
 - HV against LV + Ground
 - HV against LV + Tertiary + Ground

DESCRIPTION

The transformers testing equipment ETP-2, is a unit that automatically performs the following measurements in all type of power, distribution, or instrument transformers:

- Recovery Voltage of the insulation
- Insulation resistance
- Polarization Index

To measure these parameters, the unit applies different levels of DC test voltage through an internal programmable automatic DC voltage supply. The measured values are acquired automatically in the specified time.

The equipment evaluates the actual general status of the insulation, and detects possible ageing problems in the quality of the paper/oil insulation.

APPLICATION

The user-friendly software, quick measuring speeds, and the ability to get instantaneous organized results (on the screen, recorded or printed), the ETP-2 has great advantages when performing the following tasks:

- Quality Control after the manufacturing process
- Reception of new or repaired transformers
- Detection of possible problems during the maintenance task itself
- Integrates the data inside a predictive maintenance program

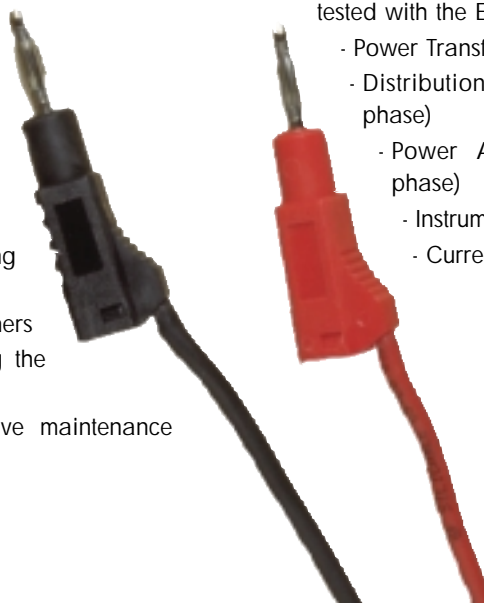
The recovery voltage test, designed for oil insulated transformers, is a new outstanding technology which allows advanced diagnostic of the paper insulation status and ageing, without considering the status of the insulation oil. It is a great advance, due to the fact that until now, there is no other method to know the paper insulation status, without extracting it from the inside of the transformer.

At the same time that the recovery voltage test occurs, the insulation resistance test, the polarization index and the time constant test are performed as well, delivering all the necessary complementary information for a proper and accurate evaluation of the general insulation status.

The automatic recording of the successive test results creates a database, which allows a trend analysis and an early detection of possible problems in the insulation.

The following types of voltage transformers can be tested with the ETP-2, despite the size and power:

- Power Transformers (single or three phase)
- Distribution Transformers (single or three phase)
- Power Autotransformers (single or three phase)
- Instrument Voltage Transformers.
- Current Transformers



TECHNICAL SPECIFICATION

The ETP-2 is a fully computer controlled unit, and is supplied with its associated software. The software can be installed in any PC with an RS-232 serial com port, as are all the units which are compose in the ETP System.

TEST SIGNAL

TEST VOLTAGE:	500/1000/1500/2000 V dc
TEST VOLTAGE STABILITY:	Better than $\pm 0.1\%$
MAXIMUM CURRENT:	2 mA DC

INSULATION RESISTANCE MEASUREMENT RANGE

RANGES:	10 Mohm to 20 Gohm 20 Mohm to 50 Gohm 30 Mohm to 100 Gohm 40 Mohm to 100 Gohm
ACCURACY:	For values lower than 10 Gohm +/- 10% +/- 3 digits For values between 10 Gohm to 100 Gohm +/- 5% +/- 3 digits

RECOVERY VOLTAGE MEASUREMENT

RANGE:	Auto-range from 0 up to 2000 V, 1 V resolution
ACCURACY:	$\pm 2\%$
TIME BASE:	Selectable from 100 ms to 1000 ms in steps of 100 ms

OTHER SPECIFICATION

- Measurement: HV to LV+ Ground, HV to LV+ Tertiary + Ground, and HV + LV + Tertiary to Ground
- On line generation and presentation of the test results on the screen or printed. The test results are automatically recorded in a file, without any intervention of the user.
- The ETP-2 is supplied with the necessary test cables. These are 8-meter lengths with an optional 12-meter extension lead, enabling to reach all transformer sizes.

DIMENSIONS. Portable 19 inches standard 3U - 7 Kg.

OTHER ASSOCIATED PRODUCTS

ETP-1	Transformer Turn Ratio Measurement Unit
ETP-3	Winding Resistance Measurement Unit
ETP-4	Short Circuit Impedance Measurement Unit
ETP SYSTEM	The total package of all 4 ETP Units.

DISTRIBUTED BY:

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