

# Three phase network analyzer and energy meter tester



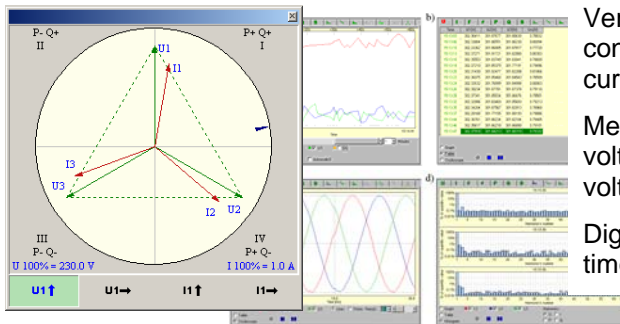
Analyzer Caltest 300 is used for testing of single and three phase energy meters and current transformers:

- in accuracy class 0,05 and 0,1,
- in current range 0,001...3000A, with additional functions:
- verification of power network wiring,
- measure, recording and analyze of power network parameters and power quality,
- multi-variant data entering – digital and graphical display, internal memory, local printing, transmission by interface and analysis on PC computer.

Caltest 300

## Caltest 300 Portable Analyzer and Tester

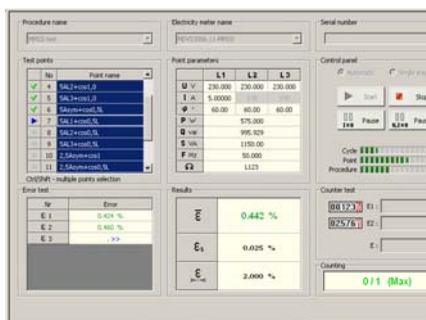
- Testing of energy meters
- Testing of three phase current transformer
- Measure of power network parameters (class 0,05 or 0,1)
- Range 0,001...100(100)(1000)(30/300/3000)A & 0,5...300V
- Vector and oscilloscope charts of three phase network
- Recording and analyse of power quality
- Powering from single phase measuring network



Verification of power network wiring in "star" and "delta" connection – graphical display of three phase voltage and current vector and direction of vector rotation.

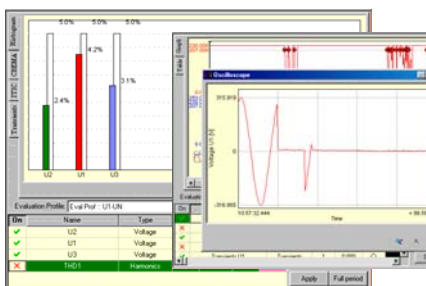
Measure and recording of power network parameters – voltages, currents, frequency, phase shifts, angles between voltages, power factors, active, reactive and apparent powers.

Digital and oscilloscope measurements with possibility of long time recording.



Energy meter testing on site – functions of computing meter error directly in percentages with method of setting time of measurements or number of impulses and functions for verification of energy meter counters. Input in S0 standard is used for testing energy meters with impulse output. Miniature photo head CF101 is used for automatic counting of meter rotor turns for testing Ferrari meters. Photo head CF100 is used for automatic testing of meters with LED indicator and manual counting of rotor turns with using "start/stop" button.

Three phase current transformer testing on site – functions of computing current and angle errors and burden of transformer.



Measure of power quality according to IEC 61000-4-30:

- for voltage: voltage short/long interruptions, voltage dips, over voltage, harmonics, THD, interharmonics TID, signal voltage, flicker Pst i Plt, voltage asymmetry,
- for current: inrush current, harmonics, THD, interharmonics TID,
- for power: harmonics.

Recording and analyzing of power quality according to the EN50160.

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Caltest300 data sheet 2008-02

## TECHNICAL PARAMETERS OF CALTEST 300

Function / parameter	Range	Error **)	
		class 0,05	class 0,1
Voltage	30...300V 0,5...30V	$\pm 0,05\%$ $\pm 0,05\%*$	$\pm 0,1\%$ $\pm 0,1\%*$
Direct current	0,1...100A 0,001...0,1A	$\pm 0,05\%$ $\pm 0,05\%*$	$\pm 0,1\%$ $\pm 0,1\%*$
Current with clamps 100A	5...100A 0,05...5A	$\pm 0,2\%$ $\pm 0,2\%*$	$\pm 0,2\%$ $\pm 0,2\%*$
Current with clamps 1000A	5,0...1000A	0,5%	0,5%
Current with flexible clamps	0...30A/300A/3000A	$\pm 1\%$ of range	$\pm 1\%$ of range
Power and energy direct measure	0,1...100A / 30...300V 0,001...0,1A / 30...300V	$\pm 0,05\%$ $\pm 0,05\%*$	$\pm 0,1\%$ $\pm 0,1\%*$
Power and energy measured by clamps 100A	5...100A / 30...300V 0,05...5A / 30...300V	$\pm 0,2\%$ @cos=1 $\pm 0,3\%$ @cos=0,5 $\pm 0,2\%*$ @cos=1 $\pm 0,2\%*$ @cos=0,5	$\pm 0,2\%$ @cos=1 $\pm 0,3\%$ @cos=0,5 $\pm 0,2\%*$ @cos=1 $\pm 0,2\%*$ @cos=0,5
Power and energy measured by clamps 1000A	5...1000A / 30...300V	0,5%	0,5%
Resolution of energy meter error measurement "ε"		0,001%	0,001%
Phase shift direct connection with clamps	0,0... $\pm 360,0^\circ$	$\pm 0,4^\circ$ $\pm 0,5^\circ$	$\pm 0,4^\circ$ $\pm 0,5^\circ$
Power factor cos φ and sin φ	0,00... $\pm 1,00$	$\pm 0,01$	$\pm 0,01$
Frequency	45,00...65,00Hz	$\pm 0,05$ Hz	$\pm 0,05$ Hz
Ambient temperature	-5...+40°C operating, -25...+60°C transportation		
Power supply	85..230..265 / 45..65Hz / 8VA (12VA with printer)		
Dimensions and weight of analyzer	270 / 240 / 180 mm / 4,5 kg		
Dimensions and weight of analyzer set	420 / 280 / 370 mm / 8,2 kg		
*) of range,			
**) power and energy errors with respect to apparent power			

## SOFTWARE CALSOFT 300

- Readout of actual measured values from the Caltest 300 using RS232 interface and their visualisation on PC screen. The Readout can be done automatically by user's defined period of time,
- readout of data, earlier stored in analyzer's memory and their visualisation on PC screen,
- export of measured data to Microsoft Excel, which enables their processing according to user's requirements,
- printing data and charts on the printer,
- saving and reading data to and from files for making archives of measurement's results.

## Caltest 300 ANALYZER'S EQUIPMENT

The Caltest 300 set is placed in the plastic case for carrying in close state and for working in open state with analyzer in hard conditions on the site. The Caltest 300 set consists of:

- analyzer Caltest 300 class 0,05 or 0,1,
- power cord,
- extension for powering from measurement network,
- photo head CF100 for counting LED flashing of meters and with "start/stop" button,
- voltage safety measurement cables (4pcs),
- current up to 10A safety measurement cables (6pcs),
- handlers and terminals for safe cables,
- S0 cable,
- RS232 cable,
- Calsoft 300 PC software,
- producer's calibration report.

Optionally Caltest 300 set may be equipped in:

- CT100A miniature electronic compensated clamps up to 100A (3pcs),
- CT1000A electronic compensated clamps up to 1000A (3pcs),
- CT3000A electronic compensated flexible clamps in ranges 30/300/3000A (3pcs),
- CF101 miniature photo head for counting rotation of Ferrari meters disc,
- AKD300 current cables up to 100A (6pcs) with terminals,
- KAS300 transportation, plastic case for carrying and working with analyzer.



View of the opened and closed Caltest 300 set