

Three phase power network analyser, energy meter and instrument transformer tester

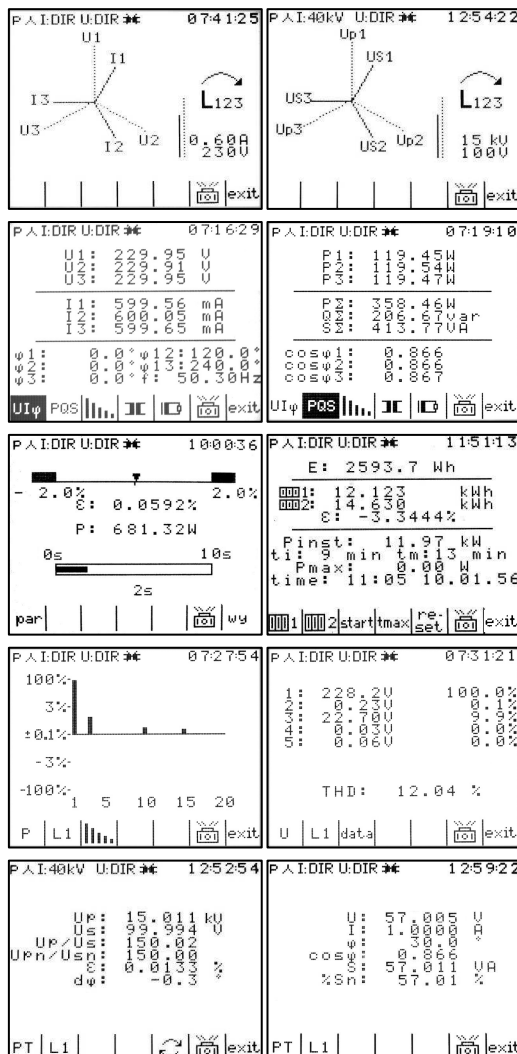
Calport 100 Plus Analyser is the universal solution with configurable six measuring inputs: 3xU+3xI or 6xI or 6xU. The Calport 100 Plus Analyser is designed for testing of single and three phase energy meters, Current Transformers (CT) and Potential Transformers (PT) in LV and MV power networks. It contains additional functions:

- verification of network wiring connection,
- measurements of power network parameters,
- multi-variant data tracing – digital and graphic display, internal memory, local printing, transmission by the interface and analysis on PC computer.



Calport 100 Plus

Calport 100 Plus	Portable analyser and tester
• Measure of power network parameters (class 0.1 or 0.2)	
• Voltage range 0.05...480V and 0.5...40kV	
• Current range 0.001...10(100)(1000)(2000)(30/300/3000)A	
• Testing of energy meters	
• Testing of Current Transformer (CT) in LV and MV nets	
• Testing of Potential Transformers (PT) in MV nets	
• Powering from measurement network	
• Calibration Certificate	



Verification of power network wiring in "star" and "delta" connection – graphical display of three phase voltage and current vector and direction of vector rotation and display of two stars of voltages or currents at instrument transformer testing.

Complete measurements of three phase power net – digital measure of voltages, currents, active, reactive and apparent power in one and three phase, phase shifts and power coefficients $\cos\phi$ and $\sin\phi$, active and reactive energy and frequency. Programming of voltage and current transformers ratio.

Testing of energy meters directly on site:
 – functions of computing meter error directly in [%] with method of setting time of measurements or number of impulses,
 - functions of measuring energy with method of setting time periods for verification of energy meter counters directly in [%],
 - functions of maximum power measuring for testing of maximum power meters.

Full harmonics analysis of phase voltages, currents, active and reactive power up to 20th harmonics for diagnostic of distortion sources. Graphical and numerical presentation of results.

Testing of LV and MV instrument transformers directly on site: functions of computing transformer ratio error directly in [%], phase error and burden measurements of transformer.

TECHNICAL PARAMETERS OF CALPORT 100 PLUS

Function / parameter	Range	Error ^{1) 2) 3) 5)}	
		class 0.1	class 0.2
Direct voltage	30...480V 0.05...30V	±0.1% ±0.1%*	±0.2% ±0.2%*
Voltage with VoltLiteWire	0.5...40kV	±0.1%±Em	±0.2%±Em
Direct current	0.04...12A 0.001...0.04A	±0.1% ±0.1%*	±0.2% ±0.2%*
Current with clamps 10A	0.1...10A 0.005...0.1A	±0.5% ±0.5%*	±0.5% ±0.5%*
Current with clamps 100A	0.5...100A 0.01...0.5A	±0.2% ±0.2%*	±0.2% ±0.2%*
Current with clamps 1000A	20...1000A 0.1...20A	±0.5% ±0.5%*	±0.5% ±0.5%*
Current with clamps 3000A	60...3000A 0.3...60A	±1% ±1%*	±1% ±1%*
Current with flex	0...30A/300A/3000A	±0.1%±Em	±0.2%±Em
Current with AmpLiteWire	30...2000A	±0.1%±Em	±0.2%±Em
Power and energy direct measure	0.04...12A / 30...480V 0.001...0.04A / 30...480V	±0.1% ±0.1%*	±0.2% ±0.2%*
Power and energy with clamps 10A	0.1...10A / 30...480V 0.005...0.1A / 30...480V	±0.5% ±0.5%*	±0.5% ±0.5%*
Power and energy with clamps 100A	0.5...100A / 30...480V 0.01...0.5A / 30...480V	±0.2% ±0.2%*	±0.2% ±0.2%*
Power and energy with clamps 1000A	20...1000A / 30...480V 0.1...20A / 30...480V	±0.5% ±0.5%*	±0.5% ±0.5%*
Power and energy with clamps 3000A	60...3000A / 30...480V 0.3...60A / 30...480V	±1% ±1%*	±1% ±1%*
Power and energy with flexible clamps	0...30A/300A/3000A / 30...480V	±0.1%±Em	±0.2%±Em
Power and energy with clamps LiteWire	30...2000A / 0.5...40kV	±0.1%±Em	±0.2%±Em
Resolution of energy meter error measurement "ε"		0.0001%	0.0001%
Phase shift direct connection with clamps	0...±360°	±0.4° ⁴⁾ ±0.5° ⁵⁾	±0.4° ⁴⁾ ±0.5° ⁵⁾
Power factor cos φ and sin φ	0.000...±1.000	±0.01	±0.01
Frequency	45...65Hz	±0.05Hz	±0.05Hz
Ambient temperature	-5...+50°C operating, -20...+60°C transportation		
Power supply	85...230...265V / DC or 45...65Hz / 10VA		
Dimensions and weight of analyser	270 / 240 / 180 mm / 3.5 kg		
Dimensions of analyser set	420 / 280 / 370 mm		

¹⁾ % - related to the measuring value, %* - related to the measuring final value

²⁾ Em-sensor basic error, Em=1%+0,1%* for flexible clamps and Em=2%+0,2%* for LiteWire sensors

³⁾ Power and energy errors related to apparent power

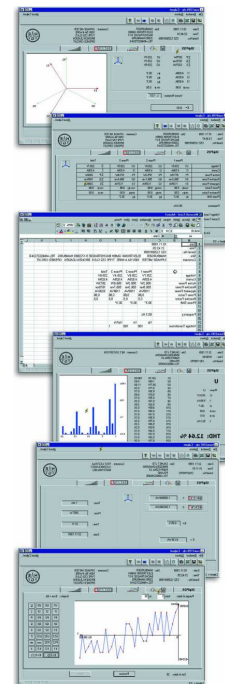
⁴⁾ In current range 0,04...12A and in voltage range 30...480V

⁵⁾ From 10% of current range and in voltage range 30...480V

⁶⁾ Power and energy errors is doubled for input wiring 3 phase 3 wire (Aron measuring system)

SOFTWARE CALSOFT 100

- reading actual measured values from the Calport 100 using RS232C interface and their visualisation on PC screen. The readings can be done automatically by user defined period of time,
- reading data, earlier stored in analyser's memory (up to 40 sets of data) and their visualisation on PC screen,
- visualisation of three phase vector chart,
- export of measured data to Microsoft Excel, which enables later their processing according to the user's requirements.
- printing data and charts on the printer,
- saving and reading data to and from files for making archives of measurements.



Calport 100 Plus ANALYSER'S EQUIPMENT

The Calport 100 Plus set is placed in plastic KAS100 transportation case for carrying in close state and for working in open state with analyser in hard conditions on the site. The Calport 100 Plus standard set consists of:

- Calport 100 Plus analyser class 0.1 or 0.2,
- power cord,
- fuse T0.25A, 250V, 5x20 (2pcs),
- set of safety measurement cables (10pcs),
- adapter with flexible Cu wire (6pcs),
- safety test clip Kleps (3pcs),
- safety crocodile test clip,
- CF100 photo head for counting LED flashing of meters and with "start/stop" button,
- user's manual,
- guarantee certificate,
- manufacturer's calibration certificate.

Optionally the Calport 100 Plus set may be equipped in:

- AKD100 additional accessories (handlers and terminals 42 pcs) of safety cables,
- CT10A electronic compensated clamps up to 10A (3pcs),
- CT100A electronic compensated clamps up to 100A (3pcs),
- CT1000A electronic compensated clamps up to 1000A (3pcs),
- FCT3000A electronic compensated flexible clamps in ranges 30/300/3000A (3pcs),
- AmpLiteWire 2000A primary current sensors up to 2000A for LV and MV nets (1pc),
- VoltLiteWire 40kV primary voltage sensors up to 40kV (1pc),
- CF101 photo head for counting rotation of inductive meters wheel disc,
- UCF100 holder for CF100 and CF101 photo heads,
- CF102 photo head with holder for inductive meters and meters with LED,
- KAS100 transportation case for portable work,
- DR100 miniature thermal printer,
- DR200 miniature thermal printer for quick printing with accumulator,
- S0 cable,
- Calsoft 100 PC software on CD with USB-RS232 cable.

