

# Power Quality Analyzer

## Protek 505

A Power Quality Analyzer measures electrical power characteristics of devices that generate, transform or consume electricity; **Protek 505** Series (A, D) are handheld instruments that accurately measure and analyze electrical parameters and incorporate cable tester functions for better convenience in use. These portable devices also allow laboratory personnel, production facility maintenance professionals and electricians to troubleshoot and benchmark power quality issues in their daily jobs.

### Features

- Measurement of power quality: Power, power factor (PF), THD (%), unbalanced rate (%)
- 1P2W, 3P3W (balance), 3P3W (imbalance/sequential measurement), 3P4W (imbalance/sequential measurement)
- Harmonic : 50th (chart/graphic)
- Measurement of voltage, current waveforms
- Measurement of inrush current
- Event analysis
- Current sensor: Flexible (Rogowski coil) current sensor, clamp-on sensor
- Function of cable detection (550D)
- Records and displays the quality of power



### General specifications

Common specifications	
Dimension & weight	100mm(W)×220mm(H)×54mm(D), Approx 800g
LCD display	3.5" 240*160 pixels, monotype graphic
Power	7.2V 2.5AH NiMH battery pack, DC12V/1A adaptor
Charge time	4 hours
Battery life time	8 hours (max)
Product safety	CATIII 600V, EN/IEC61010-1, Pollution Degree 2
PC communication	Bluetooth

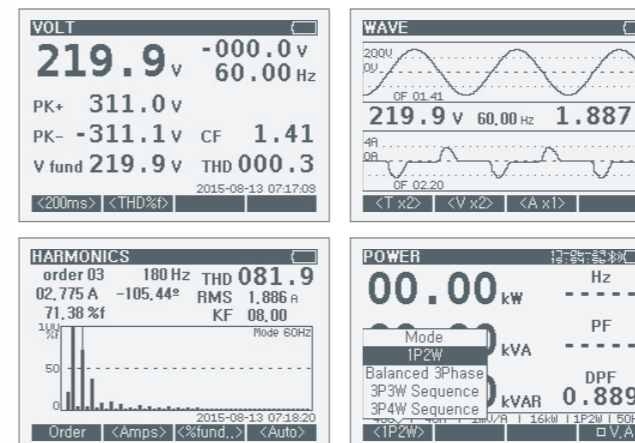
### Comparison of functions by model

Function	PROTEK 505A	PROTEK 505D
DC voltage	1mV-600V	1mV-600V
AC voltage	1mV-600V	1mV-600V
DC	10mA-1000A	10mA-1000A
AC	10mA-1000A	10mA-1000A
Power	16W-600kW	16W-600kW
Accumulated power	○	○
Waveform measurement	DC to 100Hz	DC to 100Hz
Inrush current	○	○
Harmonic	1 <sup>th</sup> - 50 <sup>th</sup>	1 <sup>th</sup> - 50 <sup>th</sup>
THD	○	○
Trend analysis	○	○
Data storage	20	20
Cable tester	x	○

### Accessories

Standard	Tester lead, CT (400A), NiMH battery pack, User's Manual, PC program, 12V/1A adaptor, bag
Option	AC/DC 400A CT (clamp-on type) AC 1000A Rogowski coil (flexible current sensor)

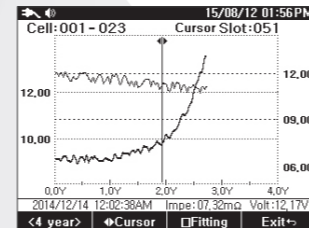
### Display



### Electrical specifications

Measurement of power (Auto/Manual)	
Power	1P2W, 3P3W (balance), 3P3W, 3P4W (sequential measurement)
Measurement range	16W-600kW
Measurement parameters	Active power, inactive power, apparent power
Resolution	100mW
Quality of power	Power, power factor (PF), THD (%), unbalanced rate (%)
Frequency	40Hz-200Hz
Measurement of Energy (Auto)	
Measurement value	Active power, inactive power, apparent power
CO2 emission	Displayed simultaneously with energy measurement
Measurement of waveform (Auto/Manual)	
Measuring mode	Measures voltage and current at the same time
Bandwidth	DC to 100Hz
Inrush current	
Target	Current
Waveform	Time, measurement value
Measurement of harmonic	
Order of harmonic	1th - 50th
Display of measurement value	Chart, graph
Target	Voltage, current
THD (Total Harmonic Distortion)	
Measuring mode	Voltage, current
Display of measurement value	THD-F, THD-R
DC Voltage (Auto/Manual)	
Measurement range	4V, 40V, 400V, 600V
Resolution	1mV
Accuracy	±0.5% + 5 dgts
AC Voltage (Auto/Manual)	
Measurement range	4V, 40V, 400V, 600V
Resolution	1mV
Accuracy	±0.75% + 5dgts(40Hz-200Hz)
DC Current/Manual	
Measurement range	4A, 40A, 400A, 1000A
Accuracy	±0.5% + CT Tolerance
- Current sensor: Selects in User Mode	
AC Current/Manual	
Measurement range	4A, 40A, 400A, 1000A
Accuracy	±0.75% + CT Tolerance(40Hz ~ 200Hz)
- Current sensor: Selects in User Mode	
- Flexible (Rogowski coil) current sensor (1000A) applied	
Trend Mode	
Setting	Sampling time
Max sampling	2,400 cases
Analysis	Cursor variable, Data storage
Event analysis	
Target	Swell, Dip, Interrupt
Storage of measurement data	
Type of storage	Snapshot
Max storage	20

# Battery Quality Analyzer



Battery change time estimate

## Protek 606

To prevent faults or quality issues in critical battery back-up applications caused by defects in stationary batteries, **Protek 606** battery quality analyzer enables the user to diagnose and evaluate the performance and the degree of ageing by testing the conditions of individual batteries (500V max) in type of cell, module or pack. **Protek 606** can handle virtually all battery testing (e.g. aged status of battery under test and the condition of a power system) in systems that use high-voltage battery packs, such as ESS, EV, HEV and PV as well as UPS.

### Features

- Measures internal resistance of 500V max of batteries
- Measures voltages at battery (DC1000V)
- Measures voltage of UPS (AC500V)
- Measures ripple voltage, current and temperature
- Measures capacity of battery (Capacity)
- Diagnoses ageing of battery and predicts its use life (to determine timing for replacement)
- Can conduct history management of battery using 8MB memory
- Auto Hold and Data Storage
- Prints out measurement data in reports
- Transmits measurement data to remote locations (e-mail, server) using Mobile App

### General specifications

Power (battery)	7.2V/5.2Ah Li-ion, 12V/2.5A DC adaptor
Data storage	8MB
Communication	Bluetooth Ver2.1 + EDR Class2
LCD display	4.0 monographic
Operating temp/humidity	0°C±45°C, RH 85% max
Storage temp/humidity	-20°C±60°C, RH 85% max
Compliant standards	IEC 61010-1 CAT III 500V Pollution Degree 2, EN61326-1:2013
Dimension	240(L)×198(W)×109(H) mm
Weight	1.4kg

### Electrical specifications

Measurement of resistance (Auto/Manual)			
Range	Resolution	Measurable current	Accuracy
3mΩ	1uΩ	100mA	±0.8%rdg±10dpts
30mΩ	10uΩ	100mA	±0.5%rdg±10dpts
300mΩ	100uΩ	10mA	
3Ω	1mΩ	1mA	
30Ω	10mΩ	0.1mA	
300Ω	100mΩ	0.1mA	

DCV (Auto/Manual)	
Range	Resolution
5, 50, 500, 1000V	1mV
Accuracy ±0.5%rdg±5dpts	

ACV	
Range	Resolution
0-500V	100mV
Frequency 40Hz-500Hz	
Accuracy ±0.75%rdg±10dpts	

Ripple voltage	
Range	Resolution
0-5V	1mV
Frequency 40Hz-10Hz	
Accuracy ±5.0%rdg±10dpts	

Measurement of temperature	
Range	Resolution
-10°C ~ 100°C	0.1°C
Accuracy ±1°C+2dpts	

DC	
Range	Resolution
4, 40, 400A	1mA
Accuracy ±0.5%rdg±5dpts (+CT Tolerance)	

AC	
Range	Resolution
4, 40, 400A	1mA
Accuracy ±0.75%rdg±10dpts (+CT Tolerance)	

Measurement of capacity (950B)	
Measuring method	Range
Rated capacity, charge/discharge test	0 ~ 100%
Measurable capacity 0 ~ 1200Ah	
Parameters displayed Efficiency, capacity, Ah, Average current, Charge-discharge time, Graph	

Charge rate SOC (State of Charge) / 950B	
Measuring method	Range
Charge-discharge test	0 ~ 100%
Measurable voltage 500V max	
Cell under test 1.2V, 2V, 3.6V, 12V	

### Accessories

Standard	Pin-type Kelvin Probe, Test Lead, Li-ion battery (7.2V/5.2Ah), 12V/2.5A adaptor, Zero-Bar, Portable bag, PC Program, User's Manual, clamp-on (SCA256AD)/950B
Optional	Extensible rod (500mm), clamp (SCA256AD), Clip-type Kelvin probe



### Comparison of functions in PROTEK 606 Series

Function		PROTEK 606A	PROTEK 606B
Impedance	Scale	3mΩ-3000(6range)	3mΩ-3000(6range)
	Accuracy	±0.8%	±0.8%
	Max Test Voltage	200V	500V
DC/V		0-500V	0-1000V
AC/V		0-500V	0-500V
Ripple Voltage		0-5V	0-5V
DC/A(Floating Current)		4A/40A/400A	4A/40A/400A
Ac/V(Ripple Current)		4A/40A/400A	4A/40A/400A
Temperature		NTC	NTC
Analyzer	Trend	o	o
	Change time	o	o
Capacity		x	o
Data record		8MB	8MB
PC Interface		Bluetooth	Bluetooth
External Interface		Mobile App	Mobile App
Auto Hold		o	o
Auto Record		o	o