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Fluke 500 Series Battery Analyzers



Intelligent test probe with integrated LCD display

Reduced testing complexity, a simplified workflow and an intuitive user interface provide a new level of ease-of-use in battery testing.

The new Fluke 500 Series Battery Analyzer is ideal test tool for maintenance, troubleshooting and performance testing of individual stationary batteries and battery banks used in critical battery back-up applications. The intuitive user interface, compact design and rugged construction ensure optimum performance, test results and reliability. Fluke 500 Series Battery Analyzers cover a broad range of battery test functions ranging from DC voltage and resistance tests to full condition testing using an automated string function testing and the test probe integrated infra-red temperature measurement system. 500 Series Battery Analyzers are designed for measurements on stationary batteries of all types.

Technical Data

- **Key measurements:** Battery resistance, dc and ac voltage, dc and ac current, ripple voltage, frequency and battery temperature.
- **Sequence measurement mode:** Automatic or manual sequence testing of battery strings with automatic measurement storage including voltage, resistance and temperature (with BTL21 intelligent test probe).
- **Comprehensive logging:** All measured values are automatically captured during testing and can be reviewed on the instrument before downloading for on the-go analysis.
- **Optimized user interface:** Quick, guided setup ensures you're capturing the right data every time, and the combined visual and audio feedback cues reduce the risk of measurement confusion.
- **Threshold comparison:** Configure multiple reference values and thresholds for resistance and voltage. Comparison result feedback after each measurement via visual and verbal cues.
- **Ergonomic test leads:** Rugged coaxial two pole kelvin test pins with remote SAVE button reduce test time and increase efficiency.
- **Test probe extenders:** Long reach probes for double stacked cells.
- **Intelligent test probe set (BT520 and BT521):** Integrated LCD display, infrared temperature measurement (BT521 only), flashlight, verbal audio feedback and captures voltage readings and temperature logging automatically or via integrated save button.
- **Enhanced data analysis:** Quickly compare trends, analyze results and create reports with included battery management software.
- **Easy reporting:** Generate PDF report on the PC software with analysis graphics and data table or quick email format report with csv file on the mobile app.
- **Wireless communication:** For data download and remote display while measuring. Browse and email measurement data via iOS app.
- **Battery life:** 7.4 V 3000 mAh lithium-ion battery for more than eight hours continuous operation.
- **USB port:** For fast data download to supplied data analysis and report management application software.
- **Highest safety rating in the industry:** CAT III 600 V, 1000 V dc max. rated for safe measurements all around the battery power supply equipment.

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Specifications

Functions	Range	Resolution	Accuracy	BT510	BT520	BT521
Battery resistance[1]	3 mΩ	0.001 mΩ	1 % + 8	•	•	•
	30 mΩ	0.01 mΩ	0.8 % + 6	•	•	•
	300 mΩ	0.1 mΩ	0.8 % + 6	•	•	•
	3000 mΩ	1 mΩ	0.8 % + 6	•	•	•
Vdc	6 V	0.001 V	0.09 % + 5	•	•	•
	60 V	0.01 V	0.09 % + 5	•	•	•
	600 V	0.1 V	0.09 % + 5	•	•	•
	1000 V	1 V	0.09 % + 5			•
Vac (45 Hz to 500 Hz with 800 Hz filter)	600 V	0.1 V	2 % + 10	•	•	•
Frequency (displayed with Vac and Aac)[2]	500 Hz	0.1 Hz	0.5 % + 8	•	•	•
AC voltage ripple (20 KHz Max)	600 mV	0.1 mV	3 % + 20	•	•	•
	6000 mV	1 mV	3 % + 10	•	•	•
Adc/Aac (with accessory Fluke i410)	400 A	1 A	3.5 % + 2			•
Temperature	0 °C to 60 °C	1 °C	2 °C (4 °F)			•
Meter mode	999 records for each measurement position with time stamp					
Sequence mode	Up to 100 profiles and 100 profile templates (Each profile stores up to 450 batteries) with time stamp					

[1]The measurement is based on ac injection method. The injected source signal is <100 mA, 1 kHz.
[2]Trigger level VAC: 10 mV, Aac: 10 A

Measurement modes

	BT510	BT520	BT521
Resistance (mΩ)	•	•	•
Battery voltage	•	•	•
Voltage dc	•	•	•
Voltage ac and frequency (Hz)	•	•	•
Ripple volt	•	•	•
Temperature of negative battery post			•
DC and ac current (and frequency)			•
DMM mode	•	•	•
Sequence mode	•	•	•
Discharge measurement mode	•	•	•
Automatic measurement save	•	•	•
Wireless communication			•
Memory view	•	•	•

General specifications

Size (HxWxD)	22 cm x 10.3 cm x 5.8 cm (9 in x 4 in x 2 in)
Weight	850 g (1.9 lb)
Screen dimensions	7.7 cm x 5.6 cm (3 in x 2.2 in)
Interface	USB mini

Environment specifications

Operating temperature	0 °C to 40 °C
Storage temperature	-20 °C to 50 °C
Lithium-ion battery charging temperature	0 °C to 40 °C
Operating humidity	Non-condensing (10 °C)
	<=80 % RH (at 10 °C to 30 °C)
	<=75 % RH (at 30 °C to 40 °C)
Operating altitude	Sea level to 2000 meters
Storage altitude	Sea level to 12,000 meters
IP rating	IP40
Radio	FCC Class A
Vibration requirements	MIL-PRF-28800F: Class 2
Drop test requirements	1 meter
Temperature coefficients	Add 0.1 x specified accuracy for each degree C above 28 °C or below 18 °C
Safety compliance	600 V CAT III
EMC	IEC 61326
ROHS	China, Europe
Protection Class 2	Pollution Degree II
Battery compliance	UN38.3
	UL2054
	IEC62133
	2G per IEC68-2-26, 25G, and 29

Ordering Information

Fluke BT510 Basic Battery Analyzer
Fluke BT520 Battery Analyzer
Fluke BT521 Advanced Battery Analyzer

Accessories
BTL10 Basic Battery Analyzer Test Leads
BTL20 Interactive Battery Analyzer Test Probe
BTL21 Interactive Battery Analyzer Test Probe with temperature sensor
BTL-A Voltage/Current Probe Adapter
C500S Soft carrying case (small)
C500L Soft carrying case (large)
BC500 AC Power Charger
BP500 Lithium-ion battery 3000 mAh
TPAK80-4 Magnetic Strap
B4WTP 4-wire test pin
i410 AC/DC Current Clamp
L300 LED flashlight
BCR Zero ohm calibration resistor

Items supplied with each model

Equipment	Qty.	BT510	BT520	BT521
Battery analyzer	1	•	•	•
4-wire test pin (set)	1	•	•	•
BTL10 Basic Test Lead (set)	1	•	•	•
TL175 TwistGuard™ Test Leads with adapter	1	•	•	•
L300 Attachable LED Flashlight	2		•	•
BTL20 Intelligent Test Probe Set, with extender (no temperature sensor)	1		•	
BTL21 Intelligent Test Probe set, with extender and temperature sensor	1			•
i410 AC/DC Current Clamp	1			•
BP500 7.4 V 3000 mAh lithium-ion battery	1	•	•	•
BC500 18 V AC Charger	1	•	•	•
Standard mini-b USB cable (cable length:1 m)	1	•	•	•
Shoulder strap	1	•	•	•
Belt strap	1	•	•	•
Magnetic hanging strap	1	•	•	•
FlukeView® Battery Management (CD) containing USB driver and manuals in all languages	1	•	•	•
Soft carrying case	1	•	•	•
Spare fuses	2	•	•	•
Paper battery tags	100		•	•

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Printed in U.S.A. 5/2014 6002814B_EN

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