TECHNICAL DATA

Fluke 500 Series Battery Analyzers



Intelligent test probe with integrated LCD display



BTL20ANG Angled Measurement Probes

KEY MEASURMENTS

Internal battery resistance, dc and ac voltage, dc and ac current, ripple voltage, frequency and 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), eliminating the need to press a button each time a measurement needs to be saved.

COMPREHENSIVE LOGGING

All measured values are automatically captured during testing and can be reviewed on the instrument before downloading for on the-go analysis

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

The 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.

- **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.
- **Intercell strap resistance test and data management:** Measures the resistance of theintercell connection between batteries in a string.
- **Test probe extenders:** Long reach, straight and angled probes for double stacked cells.
- **Intelligent test probe set (BT520 and BT521):** Integrated LCD display, infrared temperature measurement (BT521 only with BTL21 test probe), 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.

Voltage and resistance thresholds

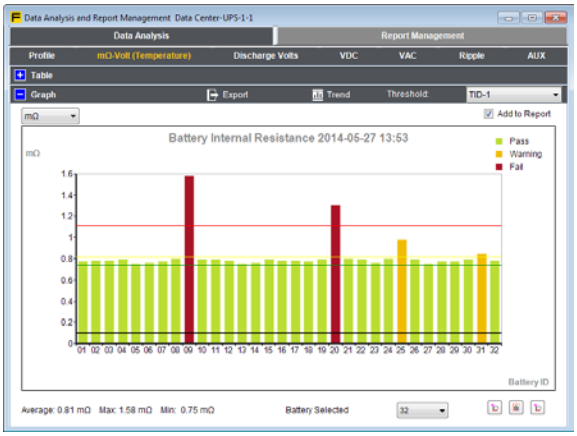
Fluke Battery Analyzers allow you to quickly and easily define upper and lower measurement thresholds or tolerance ranges. During the testing process, measured values are automatically compared to the predefined threshold levels producing a PASS, FAIL or WARN indication after each measurement. A maximum of 10 sets of thresholds can be stored and threshold indications are determined based on the following criterion:

Voltage		Resistance		
>Voltage Lower	<Voltage Lower	<Reference	>Reference and < Reference x (1+Warning %)	>Reference x (1+Fail)
Pass	Fail	Pass	Warning	Fail

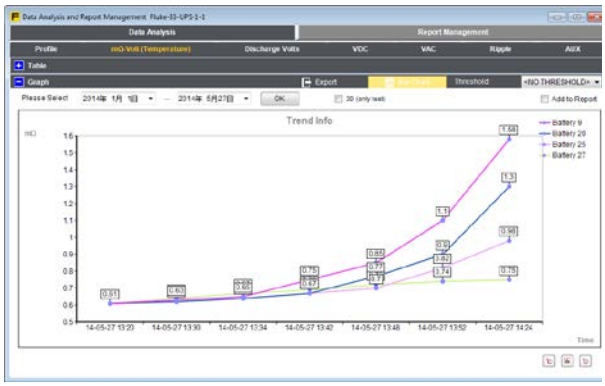
Fluke Battery Management software

Fluke Battery Management Software allows you to quickly and easily import data from the battery analyzer to a PC. The measurement data and battery profile information is stored and archived with the Management Software and can be used compare results, switch results between conductance and resistance (requires Software Management software version 1.0.69 or later) readings and perform trend analysis. All measurement data, battery profile and analysis information can be used to easily generate reports.

- Quick view saved readings
- Profile management
- Histogram of a battery string with end user defined threshold
- Historical trend data of batteries
- Multiple rounds of discharge voltage
- Quick Report Generation
- Upgrade Fluke Battery Analyzer firmware
- Switch measurement results between conductance and resistance readings



Histogram of a battery string with user defined threshold.

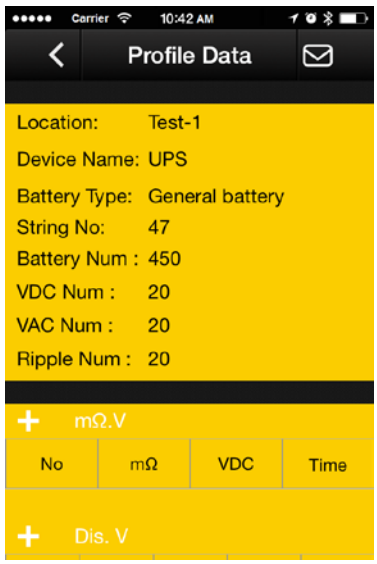


Historical trend data of batteries.

Fluke Battery Analyze mobile app

The BT521 offers wireless communication for data download and remote display while measuring via the dedicated Fluke Battery Analyzer mobile app. Using the Fluke Battery Analyze mobile app you can:

- Browse profile
- Review sequence testing data
- E-mail sequence testing data



View measurement profile.



View and email measurement data.

Specifications

	Range	Resolution	Accuracy	BT510	BT520	BT520ANG	BT521	BT520ANG
Battery resistance/Strap resistance[1]	3 mΩ	0.001 mΩ	1 % + 8	▪	▪		▪	
			1% +68			▪		▪
	30 mΩ	0.01 mΩ	0.8 % + 6	▪	▪		▪	
			0.8%+12			▪		▪
	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	BT520ANG	BT521	BT521ANG
Resistance (mΩ)	▪	▪	▪	▪	▪
Battery voltage	▪	▪	▪	▪	▪
Voltage dc	▪	▪	▪	▪	▪
Voltage ac and frequency (Hz)	▪	▪	▪	▪	▪
Ripple volt	▪	▪	▪	▪	▪
Temperature of negative battery post (Using BTL21 straight probes)				▪	▪
DC and ac current (and frequency)				▪	▪
DMM mode	▪	▪	▪	▪	▪
Sequence mode	▪	▪	▪	▪	▪
Discharge measurement mode	▪	▪	▪	▪	▪
Automatic measurement save	▪	▪	▪	▪	▪
Wireless communication				▪	▪
Memory view	▪	▪	▪	▪	▪

General specifications

BT500 Instrument	
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

FLUKE®

Items supplied with each model

Equipment	Qty.	BT510	BT520	BT520ANG	BT521	BT521ANG
Battery analyzer	1	▪	▪	▪	▪	▪
4-wire test pin (set)	1	▪	▪	▪	▪	▪
BTL10 Basic Test Lead (set)	1	▪	▪	▪	▪	▪
TL175 TwistGuard™ Test Leads with adapter	1	▪	▪	▪	▪	▪
BTL20 Intelligent Test Probe Set, with extender (no temperature sensor)	1		▪	▪		
BTL20ANG Intelligent Test Probe Set, with extender and angled tips (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	▪	▪	▪	▪	▪
Fluke Battery Management (CD) containing USB driver and manuals in all languages	1	▪	▪	▪	▪	▪
Soft carrying case	1	▪	▪	▪	▪	▪
Spare fuses	2	▪	▪	▪	▪	▪
Paper battery tags	100		▪	▪	▪	▪

Ordering Information

Fluke BT510 Basic Battery Analyzer
Fluke BT520 Battery Analyzer
Fluke BT520ANG Battery Analyzer, with angled test probes
Fluke BT521 Advanced Battery Analyzer
Fluke BT521ANG Advanced Battery Analyzer, with angled test probes

Accessories

BTL10 Basic Battery Analyzer Test Leads
BTL20 Interactive Battery Analyzer Test Probe
BTL20ANG Interactive Battery Analyzer Test Probe with angled tip
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
BCR Zero ohm calibration resistor

Fluke. *Keeping your world up and running.®*

Fluke Corporation
PO Box 9090, Everett, WA 98206 U.S.A.

Fluke Europe B.V.
PO Box 1186, 5602 BD
Eindhoven, The Netherlands

For more information call:
In the U.S.A. (800) 443-5853 or
Fax (425) 446-5116
In Europe/M-East/Africa +31 (0) 40 2675 200 or
Fax +31 (0) 40 2675 222
In Canada (800)-36-FLUKE or
Fax (905) 890-6866
From other countries +1 (425) 446-5500 or
Fax +1 (425) 446-5116
Web access: http://www.fluke.com

©2014-2015 Fluke Corporation.
Specifications subject to change without notice.
Printed in U.S.A. 5/2015 6002814d-en

Modification of this document is not permitted without written permission from Fluke Corporation.