

# 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.

## Specifications

| Functions   | Range  | Resolution | Accuracy    | BT510 | BT520 | BT521 |
|---|--|------------|-------------|-------|-------|-------|
| Battery resistance <sup>1</sup>                     | 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) <sup>2</sup> | 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 |            |             |       |       |       |

<sup>1</sup>The measurement is based on ac injection method. The injected source signal is <100 mA, 1 kHz.

<sup>2</sup>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

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

## Environment specifications

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

**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>

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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

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