

BITE5 Series Battery Tester

Megger[®]



- Measures impedance on modules up to 500 V
- Measures inter-cell (strap) resistance
- Supports lead acid, NiCD and lithium-ion
- Supports battery discharge testing
- Monitoring battery recharge
- Test parallel strings without segmenting
- Touch screen set-up and trending
- RFID Tag Reader
- Logging of Impedance, Voltage and Temperature

DESCRIPTION

The BITE5 Series of battery testers will test lead acid batteries, NiCD batteries as well as lithium-ion batteries. They can measure and record battery voltage, impedance, temperature and inter-cell connections. The BITE5 Series also supports discharge testing.

It will measure the voltage, current, impedance and temperature throughout the discharge cycle. The BITE5 Series can also be used as a logger. Log impedance, voltage and or temperature.

Battery impedance testing

The BITE5 Series will measure cell impedance, cell voltage, temperature and inter-cell connections (straps).

The recorded data can be trended on the unit's touch screen. View the trended data of each test or trend the data of each cell. Set pass, warning, and fail limits for voltage and impedance and straps. Record the ripple voltage, ripple current, and float current and transfer the recorded data via USB, Bluetooth or via an SD card to the PowerDB software, then create custom reports and automated analysis.

Test currents can be set at 100mA, in order to take battery measurements on battery modules or entire battery strings up to 500Vdc. Test currents can be set at 700mA, in order to test larger batteries and inter-cell connections. An external transmitter can provide 10 Amps of test current. This provides testing of the largest flooded battery cells. This method also injects the test current through the entire string. This provides absolute measurements of inter-cell connections. It also allows for measurements to be taken through hardware as well as in the posts. It is also ideal for noisy strings, as it provides the large signal to noise ratio.

Battery discharge testing

The BITE5 Series will not only perform all the required pre-discharge tests but it can also record the voltage, DC current, impedance, and temperature of each cell throughout the entire discharge test. Measure the average impedance at the end of the commissioning test and use this as a limit for future impedance tests. Trend the recorded data on the BITE5 Advanced touch screen and view the trended data of each test, or trend the discharge of each cell.

APPLICATIONS

- Lead Acid Battery Testing (VLA/VRLA) up to 7000Ah.
- Lithium-Ion Battery Testing (Modules up to 500Vdc)
- NiCD battery testing
- Battery Discharge Monitoring
- Testing of Parallel Strings without segmentation
- Logging
- EV Batteries Troubleshooting
- Mobile battery packs (Forklift)
- Lithium-ion battery testing up to 500 V DC
- UPS testing with optional extension leads.
- ESS Systems
- Pitch control backup batteries.
- Sub-station Standby Batteries Testing
- NERC Compliance
- IEC 60896-21 Compliance
- IEEE450 / IEEE1188 / IEEE1106
- Traction Station Battery Testing
- Low resistance measurements
- Voltage and Current measurements

FEATURES AND BENEFITS

- Battery Ohmic Testing (Impedance or Conductance)
- DC Float Current Measurement and recording
- AC Ripple Current Measurement and recording
- AC Ripple Voltage Measurement and recording
- Battery Discharge Monitoring
- Inter-cell measurements (Straps)
- Logging Discharge / Recharge
- Logging Impedance
- Logging Temperature
- Testing battery modules up to 500 Vdc
- Measure string continuity on strings up to 500Vdc.
- Milli-ohm measurement and recording
- AC Micro-ohm measurement and recording
- Voltage measurement and record up to 1000Vdc / 600Vac
- Current Measurement up to 1000Adc / 100Aac
- Touchscreen
- Trending of Historical Data
- Optional Bluetooth
- RFID Support

Features

Create string configurations:



Impedance testing: measure cell impedance, cell voltage, cell temperature and strap resistance.



Discharge testing: measure cell impedance, voltage, and temperature.



View individual cell impedance data:



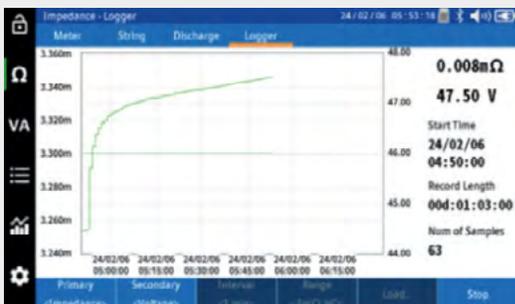
Trend string impedance data:
Individual test data and historical cell data.



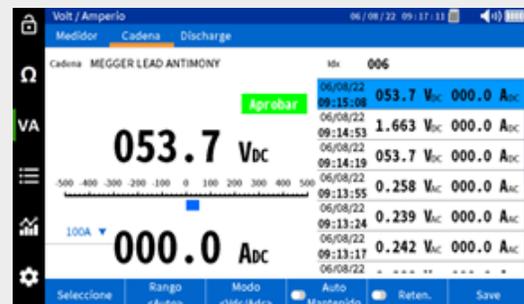
Trend inter-cell resistance:



Log discharge and recharge and temperature.



Capture screen shots



BITE5 Series Battery Tester



Feature details	BITE5	BITE5 ADV	BITE5-PRO
Cell Impedance / Conductance	Imp & Cond	Imp & Cond	Imp & Cond
Strap Resistance	×	✓	✓
Absolute strap measurements	NA	Relative	Absolute
Temperature	✓	✓	✓
Logging	×	✓	✓
Capacity Testing DC Measurement	✓	✓	✓
Measures DC Voltage	1000V _{DC}	1000V _{DC}	1000V _{DC}
Measures AC Voltage	600V _{AC}	600V _{AC}	600V _{AC}
Display	Touchscreen	Touchscreen	Touchscreen
Memory	16G SD Card	16G SD Card	16G SD Card
Trend Historical Data	✓	✓	✓
Retesting of cells during testing	✓	✓	✓
Retesting of cells after test complete	✓	✓	✓
Disregard voltage polarity setting	✓	✓	✓
Test parallel strings without segmentation	×	With optional 5A CT	With optional 5A CT
Max Cell / Pack Voltage Supported	200V _{DC}	500V _{DC}	500V _{DC}
Test Current	100mA	100 / 700mA	10A
Hi Current testing of large VLA cells	×	×	✓
Float Current Measurements	Optional CT	Optional CT	Optional CT
Ripple Current Measurements	Optional CT	Optional CT	Included CT
Measurement location	Terminals	Terminals	Terminals or hardware
RFID	×	✓	✓
Bluetooth	×	Optional	Optional
Wireless Printer Support	×	BT Required	BT Required

BITE5

An introductory battery testing instrument at an exceptional value.

Tests lead acid batteries, VRLA, Gel cell and small VLA. Test lithium-ion battery packs up to 200Vdc.

Perform impedance testing, conductance testing, supports discharge testing, as well as measuring and recording voltage and current measurements.

An ideal instrument for UPS applications, both lead acid and lithium-ion.

BITE5-ADV

An advanced unit that provides higher test current to test both batteries and inter-cell connections.

The BITE5 Advanced supports all the features of the BITE5, plus it test straps, tests lithium-ion packs up to 500Vdc, supports logging of impedance, voltage and temperature. The BITE5 Advanced also has RFID support. Place the RFID card on the string. Then simply scan the RFID card and start testing.

BITE5-PRO

The Pro unit supports all the features of the BITE5 Advanced plus it can test with up to 10A of test current. This allows the BITE5-Pro to test the largest lead acid batteries, as well as being able to test NiCD batteries even when it is not possible to access the posts of the cell. The BITE5 Pro provides absolute inter-cell (strap) values. No need to compare then to previous measurements.

SPECIFICATION

Receiver

Input power

AC Adapter

Input: 100 – 240 V AC (50/60 Hz)

Output: 12 V DC at 2.5 A

Battery

Li-ion rechargeable pack: > 5.2Ah

Voltage rating: 7.2 V

Charge time 4 hrs Battery life: > 8 hrs

300 charge/discharge cycles

Internal impedance

Range Resolution Accuracy

3 mΩ 1 μΩ +/- 1 % of reading +/- 10 digits

30 mΩ 10 μΩ +/- 0.8 % of reading +/- 10 digits

300 mΩ 100 μΩ +/- 0.8 % of reading +/- 10 digits

3 Ω 1 mΩ +/- 0.8 % of reading +/- 10 digits

30 Ω 10 mΩ +/- 0.8 % of reading +/- 10 digits

300 Ω 100 mΩ +/- 0.8 % of reading +/- 10 digits

Voltage DC/AC

Range Resolution Accuracy:

5 V DC 0.001 V +/- 0.5 % of reading +/- 5 digits

50 V DC 0.01 V

500 V DC 0.1 V

1000 V DC 1 V

5 V AC 0.001 V +/- 0.75 % of reading +/- 10 digits
(40 Hz – 100 Hz)

50 V AC 0.01 V

500 V AC 0.1V

600 V AC 1 V

Current DC/AC

Range Resolution Accuracy:

4 A DC 0.001 A +/- 0.5 % of reading +/- 1 digit

40 A DC 0.01 A + (CT Tolerance)

400 A DC 0.1 A +/- 0.5 % of reading +/- 5 digits

1000 A DC 1 A + (CT Tolerance)

4 A AC 0.001 A +/- 0.75 % of reading +/- 1 digit

40 A AC 0.01 A + (CT Tolerance)

400 A AC 0.1 A +/- 0.75 % of reading +/- 10 digits

1000 A AC 1 A + (CT Tolerance)

Temperature

Range Resolution Accuracy:

10 °C ~ 100 °C 0.1 °C +/- 1 °C +/- 2 digits

Ripple voltage

Range Resolution Accuracy:

0–5 V 0.001 V +/- 0.5 % of reading +/- 10 digits (40 Hz – 10 KHz)

Repeatability: 0.1 %, 2 σ

Record Capacity

Memory: 8 GB up to 16 GB flash storage

Impedance record: Max 1000 records

Environmental

VA record: Max 512 records

Operating: 0 – 50 °C (32 – 122 °F)

Storage: -20 – 50 °C (-4 – 122 °F)

Charging temperature: 10 – 40 °C (50 – 104 °F)

Relative humidity: 10 – 85 % NC non-condensing

Altitude Operational: 0 – 2000 m

Ingress protection

IP54

Display

160 x 90 mm touch screen

Safety/EMC/Vibration/Compliance

Meets the requirements of IEC61010-1, CE, UKCA

CAT Rating: 600 V CAT III, Pollution Degree 2

Shock and vibration:

EN61010-1 EN60529

IEC61010-1:2010 (3rd Ed)

EN61010-1:2010 (3rd Ed)

IEN61326-1:2013

EN55011/A1:2010 (Class A)

EN61000-3-2:2014

EN61000-3-3:2013

Weight/Dimensions

Dimensions: 240 x 160 x 65 mm (9.45 x 6.30 x 2.56 inch)

Weight: 0.9 kg (1.98 lbs)

SPECIFICATION

Transmitter (For use with Pro)

Environmental

Operating Temperature: -10°C to 60°C

Storage Temperature: -20°C to 80°C

Altitude: 2000 meters

Humidity: 95% NC

Ingress Protection

IP44

Safety/EMC/Vibration/Compliance

Conducted EMI Immunity: IEC 61000-4-6

Radiated EMI Immunity: IEC 61000-4-3

ESD Immunity: IEC 61000-4-2

Conducted EMI Emissions: CISPR 11 Group 1 class A.

Radiated EMI Emissions: CISPR 11 Group 1 class A.

Environmental Impact: Hazardous Substances

Directive 2002/95/EC (RoHS) and 2011/65/EU (RoHS2)

Shock: MIL-STD-810G

Vibration: MIL-STD-810G

Safety: CAT IV @ 600V rated at altitudes up to 2000 meters

Mechanical

Size Approximately: 7" x 11" x 16" (178 x 280 x 406 mm)

Weight: 21.80 lbs (9.88 kg)

Output Current Source

Output Waveform: Sinusoidal with THD < 5%

Output Amplitude Fixed: 10 ARMS into short circuit

Output Impedance: < 2.0 ohm capacitive (1.45 ohm, nominal)

Output Frequency: 55 ± 1 Hz

Load resistance: 1.99 ohm, max.

DC voltage: 600 VDC, max.

Display

AMLCD Display

Size: 3.5" diagonal

Aspect Ratio: 4:3

Resolution: 320 x RGB x 240

RMS Current Display

Digits: 3.5

Range: 0.00 A to 11.00 A

Accuracy: 5% display + 0.05 A

DC Voltage Display

Digits: 3

Range: 0 V to 650 V

Accuracy: 5% display + 1 V

Impedance Display

Digits: 2.5

Range: 0.00 to 1.99 Ohm

Accuracy: 10% display + 0.01 Ohm



Included accessories

Included accessories		Art.-No.
<p>Duplex Leads Used with BITE5 and BITE5-ADV to take battery measurements. Includes temperature probe in negative lead.</p>		<p>90043-241</p>
<p>Banana Lead Set Used with BITE5-Pro to take battery measurements.</p>		<p>90037-576</p>
<p>International AC Adapter</p>		<p>90039-077</p>
<p>32G Micro SD Card</p>		<p>90037-572</p>
<p>SD Card / USB Reader</p>		<p>90037-571</p>
<p>USB Cable</p>		<p>90037-569</p>
<p>Zero Bar Supports periodic zeroing of measurements.</p>		<p>90037-575</p>

Included accessories

Included accessories		Art.-No.
<p>Jewel Straps Used in conjunction with the carry bag strap, so BITE5 can be hung around neck.</p>		90037-529
<p>Stylus</p>		90037-570
<p>Power DB LITE Transfer configurations to and from the BITE5. Transfer data from the BITE5 via USB, SD Card or Bluetooth. Create customizable reports, auto calculates baseline values, auto calculates limits.</p>		Downloadable
<p>Carry Bag Allows for carrying of BITE5 and all standard accessories.</p>		90037-573
<p>Pouch bag</p>		90037-574
<p>BITE5 Transmitter For BITE5-PRO Only</p>		BITE5-TRAN

Optional accessories

Optional accessories		Art.-No.
<p>Concentric probe The concentric probe allows for battery testing on batteries with safety caps or safety lugs. Users can easily access the terminals through the access hole. The concentric probe comes in two styles. One probe comes with a 11.75 mm (1/2") tip the other has a 25.4 mm (1") tip. This allows access to terminals even on batteries with the deepest safety lugs.</p>		<p>90043-242 (11.75mm)</p> <hr/> <p>90043-243 (25.4mm tip)</p>
<p>BITE5 extension kit for probes Allow operator to take measurements while being able to stand safely back from the voltages being measured. Ideal for UPS application. Extension leads sold separately. Available with straight and 90-degree probes.</p>		<p>See ordering information for options</p>
<p>3-meter straight probe. For use with BITE5 extension kit.</p>		<p>90043-245</p>
<p>3-meter right angle probe. For use with BITE5 extension kit.</p>		<p>90043-244</p>
<p>3-Meter clip on probes Ideal for taking measurements across entire battery strings. Used for BITE5-ADV and Pro logging function. Allows logging of voltage, impedance and temperature.</p>		<p>90043-246</p>
<p>0 to 100 A AC CT Used for measuring and recording AC ripple current. Jaw opening 0.96" ID (24.5mm) Comes standard with BITE5-Pro</p>		<p>MCV-100B5B</p>

Optional accessories

Optional accessories		Art.-No.
<p>1A to 1000 A DC CT Used for measuring and recording DC current. Jaw opening 2 inches (52.0 mm)</p>		<p>MCCV-1KDC-B5B</p>
<p>Bluetooth Communications Upgrade Supports wireless communications to Power DB and wireless printer. For upgrade of BITE5-ADV and BITE5-PRO units only.</p>		<p>BITE5-ADV-BTUG (Will need to supply serial number of unit to be upgraded)</p>
<p>Wireless Bluetooth printer Allows printing of test results. <u>Bluetooth required for printer.</u> Option for BITE5-ADV and BITE5-PRO only.</p>		<p>90029-573</p>
<p>Paper for printer (x 48 rolls)</p>		<p>90029-573-P</p>
<p>Magnetic strap Allows BITE5 to be hung from a metal surface during testing.</p>		<p>1010-013</p>
<p>Backpack carry bag Hands free carrying of the BITE5 and all of its accessories, as well as room for operator tools.</p>		<p>1015-611</p>

Ordering information

Included standard	
Description	Part number
BITE5 Battery tester	BITE5
BITE5 Advanced Battery and strap tester with logging and RFID support	BITE5-ADV
BITE5 Advanced with Bluetooth communications	BITE5-ADV-BT
BITE5 PRO Hi Current battery and strap tester with logging and RFID support	BITE5-PRO
BITE5-PRO with Bluetooth communications	BITE5-PRO-BT
Duplex probes (with temperature probe)	90043-241
Voltage test leads	90037-576
Charger	90039-077
Jewel Straps	90037-529
Zero bar	90037-575
16 GB microSD card	90037-572
microSD card USB reader	90037-571
USB cable	90037-569
Stylus	90037-570
Carry bag	90037-573
Pouch bag	90037-574

Optional	
Description	Part number
Concentric probe (1/2" tip)	90043-242
Concentric probe (1" tip)	90043-243
100 A AC current clamp (Standard with BITE5 Pro)	MCV-100B5B
1000 A AC/DC current clamp	MCCV-1KDC-B5B
3-meter right angle probe	90043-244
3-meter straight probe	90043-245
3-meter clip on probe	90043-246
Extension kit with straight probe	1016-066
Extension kit with 90-degree probe	1016-064
Extension kit with straight and 90-degree probes	1016-067
Backpack for BITE5 (with BITE5 pouch)	1015-611
Adding Bluetooth Communications to unit in field (BITE5-ADV or BITE5-PRO only)	BITE5-ADV-BTUG
BITE5-PRO Transmitter	BITE5-TRAN
Wireless printer (Bluetooth required)	90029-573
Paper for printer (x 48 rolls)	90029-573-P
Magnetic strap	1010-013

SALES OFFICE

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ISO 9001
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