



Award-Winning INTELLIGENT BATTERY TESTER



Produced in the UK by:-

Address: ACT Meters Ltd
The Old Smithy
Church Road
Rainford
Merseyside
Post Code: WA11 8HD
Country: United Kingdom

Phone: +44 (0)1744 886660
Fax: +44 (0)1744 886661
USA Freecall: 1-877-712-2278
Email: info@actmeters.com
Web: www.actmeters.com

For future re-calibration refer to instruction Q8 overleaf.

Revised:1/06

Unique GOLD-IBT features!

- Simulates full battery discharge test in seconds.
 - Tests 12Volt = SLA and Car batteries from 1.2Ah - 200Ah.
 - Automatically displays Ambient Temperature, DC Voltage and Ampere-hour Capacity available.
-
- Powered by battery under test with polarity protection.
 - Warns if battery voltage is too high or low.
 - Table indicates when batteries need to be recharged or replaced.
 - Quick, accurate and easy to use.
 - Applications include: Fire and Burglar Alarm Systems, Motor Vehicles, Boats, UPS Systems, Telecommunications, Emergency Lighting, Portable Tools, Lawnmowers, Mobility Vehicles, Medical Equipment, Solar Power, Robotics etc.

For full product range, testimonials and worldwide distributors visit:-

www.actmeters.com

In recognition of new product development and innovation...

For excellence and innovation in the Security Industry...



Simulates full battery discharge test in seconds!

New GOLD-IBT

Tests 12Volt = SLA and Car batteries from 1.2Ah - 200Ah.

Automatically displays Ambient Temperature, DC Voltage and Ampere hour (Ah) Capacity available in the battery.

Thank you for purchasing this unique Award-winning Intelligent Battery Tester. Before use, please read the operating instructions and battery testing tips carefully.

The problem Battery manufacturers recommend to recharge or replace the battery when the rated Amp/hr (Ah) capacity falls below 65% - but multimeters are only capable of measuring terminal voltage!

The solution The new GOLD-IBT Intelligent Battery Tester from ACT Meters is designed to simulate a full battery discharge test in seconds! Digitally programmed to test 12Volt SLA and car batteries from 1.2Ah - 200Ah, this unique Award-winning product automatically displays Ambient Temperature, DC Voltage and Ampere-hour Capacity available in the battery. It's quick, accurate and easy to use and identifies batteries that need to be recharged or replaced according to prevailing conditions - irrespective of how long they have been in use.

How it works The Intelligent Battery Tester is not a load tester, nor does it measure resistance or conductance. Instead it works by applying a pulsed frequency to the battery under test. The patented neutral net software analyses the chemistry of the battery during this process and provides a direct reading in Amps/Hr. The design took many months to complete and accuracy was assured by performing a full discharge test on 100s of batteries and comparing results. Testimonials as to its benefits, reliability and performance can be viewed by visiting www.actmeters.com.

Operating instructions:

- 1: Connect to isolated 12Volt DC \equiv battery terminals only (*never test when under charge*).
- 2: Make good connections, Red +, Black - (*remove dirt, grease or oxidization from battery terminals*).
- 3: Hold IBT still during test procedure (*erratic Ah readings may result if connections move during test*).
- 4: Record Ambient Temperature, DC Voltage and Ampere hour Capacity available (*attach test label to side of battery*).
- 5: Recharge or replace battery when Ah reading falls below 65% (*refer to table on side of tester*).

Please note that:

- 1: The IBT Ambient Temperature reading does not affect the Ampere hour (Ah) reading obtained. *As battery life is determined by ambient temperature, it's important to record it for future reference.*
- 2: The IBT Ampere hour (Ah) reading is determined by:-
(a) battery connectivity, (b) battery temperature
(c) battery state of charge.
- 3: When repeat testing the same battery, the IBT Ambient Temperature reading will increase, the DC Voltage will decrease but the Ampere hour reading should stay approximately the same.
- 4: When testing many batteries, let the IBT cool down for short period when 'Overheat' is displayed.
- 5: If the IBT '*Skips Past*' the Ampere hour reading, there is no current available in the battery under test.
- 6: If the GOLD-IBT is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Technical data

Model: GOLD-IBT Intelligent Battery Tester
Operating Voltage: 12Volts DC \equiv
Battery Type: SLA (Sealed Lead Acid) and Car batteries.
Battery size: 1.2Ah - 200Ah.
Simulated Battery Discharge Test: C20 to 10.50VDC @ 25°C (77°F).
Display: Back-lit LCD.
Ambient Temperature: 0° - 100°C (32° - 212°F).
Voltage too high warning: >15Volts DC \equiv
Voltage too low warning: <10Volts DC \equiv
Low current warning: <0.5Ah.
No Ah reading: <0.2Ah.
Accuracy Ambient Temperature and DC Volts \equiv \pm 5%.
Accuracy Ampere hour (Ah): \pm 10%. *Accuracy could vary due to battery design or specification.*
Reverse Polarity Protection: Block Diode.
Repeat Test Capability: Up to 10 consecutive tests.
Overheat warning: 40°C (105°F) \pm 10°.
Size: 110L x 55W x 35D mm (4 ^{1/4}" x 2 ^{3/16}" x 1 ^{3/4}").
Test Lead Length: 52cm (20 ^{1/4}").
Gross Weight including packaging: 400gms (14oz).
Accessories included: ACT Carrycase, Certificate of Conformity, Quantity of Battery Tested Labels.
Manufacturers Warranty: 1 Year from Serial Date.

ACT Meters Ltd reserve the right to change specification without prior notice.

Frequently asked questions

Q1: CAN I TEST THE BATTERY WHILST BEING CHARGED?

A: NO! TO PREVENT POSSIBLE ELECTRICAL DAMAGE, ALWAYS ISOLATE THE CHARGE CURRENT BEFORE TESTING.

Q2: CAN I TEST 6VOLT DC \equiv SLA BATTERIES WITH THE IBT?

A: Yes! By connecting two 6Volt SLA batteries in series (e.g. one new, one used), the IBT will display the combined Ampere hour (Ah) capacity in both batteries. **To obtain accurate Ah readings use a short length of 20Amp rated test lead cable to make the series connection.**



Q3: DOES THE IBT AMBIENT TEMPERATURE READING AFFECT THE AMPERE HOUR (AH) READING OBTAINED?

A: No! The ambient temperature reading is shown to highlight problems where battery life or performance is affected by adverse ambient temperatures. SLA batteries normally last up to 5 years at 20° - 25°C (68° - 77°F) when float charged at 13.8VDC. To obtain the relevant ambient temperature reading, allow the IBT to acclimatise before testing.

Q4: IS THE AMPERE HOUR READING OBTAINED ACCURATE?

A: Yes! The available Ampere hour (Ah) capacity is determined by (a) battery connectivity, (b) battery temperature and (c) battery state of charge. The GOLD-IBT now comes fitted with clips which enable touch contact (Fig1) and grip connection (Fig2). The clips have wide opening jaws with 'bed-of-nails' contacts which enable low resistance connection to awkward shaped terminals and round battery posts. **To obtain accurate, repeatable Ah readings when using touch contact, maintain a firm constant pressure connection for the duration of the test.**



Fig1

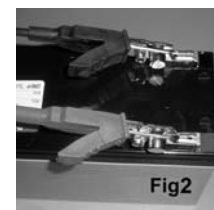


Fig2

Q5: CAN A BATTERY SHOW A MUCH HIGHER AH CAPACITY THAN STATED?

A: Yes! The Ampere hour (Ah) capacity stated on the battery is when its temperature is between 20° - 25°C (68° - 77°F). If the battery temperature is above 30°C (85°F), or if it is float charged above 14VDC, it could show a significantly higher Ah capacity than stated and its life could be drastically reduced.

Q6: WHY DOES THE IBT SHOW 'OVERHEAT'?

A: During repeat testing a test resistor warms up. When it reaches >40°C (105°F) 'Overheat' is automatically displayed. Up to 10 consecutive tests can be performed before 'Overheat' is displayed. When this occurs let the IBT cool down. It is not necessary to test the same battery more than twice.

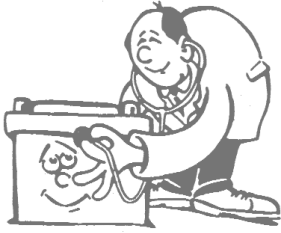
Q7: WHEN SHOULD I RECHARGE OR REPLACE THE BATTERY?

A: The battery should be recharged or replaced when the available Ah capacity falls below 65% of the stated Ah capacity on the battery. If permanently float charged, the battery should be replaced irrespective of how long it has been in use.

Q8: DOES THE IBT REQUIRE FUTURE RE-CALIBRATING?

A: Yes, It is advised to have your IBT checked and re-calibrated annually. We operate a FedEx worldwide collection/return calibration service. Call ACT for details and cost.

Battery Testing Tips!



1. Test the voltage on brand new (out of the box) SLA batteries with a calibrated multimeter. Although no indication of the state of charge, the voltage should be between 12.5 - 13VDC. Batteries below 12.3VDC could be discharged or defective and should be returned to your supplier.
2. SLA (Sealed Lead Acid) batteries normally self-discharge at 3% per month, so by the time they reach you after shipping and storage could show a lower Ah capacity than expected when tested. Check the date of manufacture stamped on the battery (e.g. 40302*** = 2nd March 2004) and if found to be more than 4 months old, re-charge prior to use. If you cannot decipher the date code, contact the battery supplier for more information. To minimise the level of self-discharge, store batteries in the coolest place possible.
3. The Ampere hour (Ah) capacity specified on brand new SLA batteries is given when the battery temperature is 20°C - 25°C (68°F - 77°F). The Ah capacity available can be significantly higher or lower if the battery is above or below this temperature.
4. SLA batteries hate heat! Above 30°C (85°F) and/or if float charged above 14VDC, battery life could be drastically reduced. In adversely hot environments, the battery may need to be replaced on an annual basis. In extreme cold conditions below 5°C (40°F), full capacity may never be reached and a larger battery size may need to be considered.
5. For optimum life and performance in standby applications, 12Volt SLA batteries should be float charged at 13.8VDC (2.3vpc) at an ambient temperature of 20° - 25°C (68° - 77°F). When tested under these ideal conditions, a battery should have approximately 90% of its Ah capacity at 3 years, 65% at 4 years and 40% at 5 years. Batteries should always be recharged or replaced when the available capacity falls below 65% - irrespective of how long they have been in use.
6. There are two popular types of VRLA (Valve Regulated Lead Acid) batteries:-
 - 1) AGM (Absorbed Glass Matte). Normally used in standby (permanently charged) applications including:- Alarm Systems, Emergency Lighting and UPS power supplies.
 - 2) GEL (Gelified Electrolyte Liquid). Normally used in cyclic (repeatedly charged and discharged) applications including:- Mobility Vehicles, Golf Carts, Robotics etc.

Note: If the battery does not state which type, refer to the specifications or contact your supplier.

The GOLD-IBT Intelligent Battery Tester is digitally programmed to AGM batteries, but is capable of testing GEL or any other specialist SLA technology by using an 'Resistance Correction Percentage Factor'. The correction factor to use when testing GEL batteries is normally "Ah reading +40%". To establish the correction factor for other specialist SLA batteries, first test a brand new battery which has been kept at 20° - 25°C (68° - 77°F) for at least 24 hours. Test the battery twice to confirm the Ampere hour capacity, then calculate the percentage correction factor needed (higher or lower) to be used to match the Ah capacity specified on the battery. This percentage figure should be used when testing this type of battery, whether new or in use.