



GOLD-PLUS 6/12V Intelligent Battery Tester

Operating Instructions



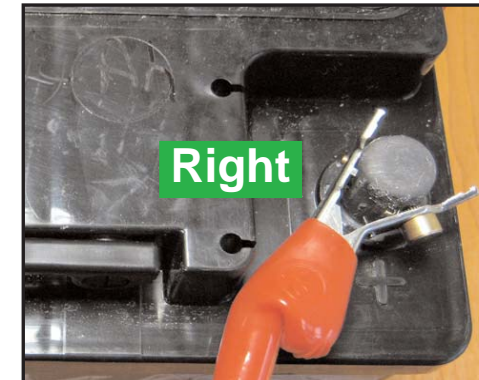
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QUICK TEST GUIDE

1: Connect tightly to battery posts & sockets as shown.



2: Observe 20 second test sequence.

- POWERING UP..
- SET CALIBRATE
- TESTING VOLTS..
- PLEASE WAIT..
- 12.66 VOLTS
- PRESS TO TEST
- TESTING Ah..
- 7.2 Ah
- TEST COMPLETE



STOP!
READ THESE
INSTRUCTIONS WITH
IMPORTANT TESTING TIPS
BEFORE USE..

3: Copy results onto a label and attach to the battery.
Note: The Ah available is determined by battery age, temperature and state of charge (read STEP 5).

WARNING: THE GOLD-PLUS IS DESIGNED TO TEST 6/12VOLT LEAD ACID BATTERIES FROM 1.2AH - 100AH. DAMAGE OR INJURY MAY RESULT IF CONNECTED TO VOLTAGE ABOVE 15VDC. ISOLATE BATTERY FROM CHARGE SUPPLY BEFORE TESTING. IF THE GOLD-PLUS IS USED IN A MANNER NOT SPECIFIED, THE PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED.

STEP 1: How GOLD-PLUS works.

The GOLD-PLUS Intelligent Battery Tester is powered by the battery under test and designed to test 6V lead acid batteries from 1.2Ah to 12Ah and 12V from 1.2Ah to 100Ah. The Ah calibration control enables it to be calibrated to test; Standby SLA, Cyclic GEL and Car FLOODED batteries. It can be used to test batteries repeatedly or continuously as required.

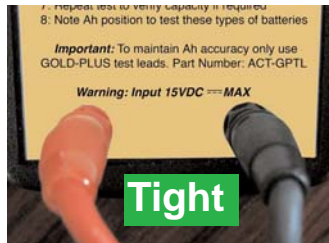
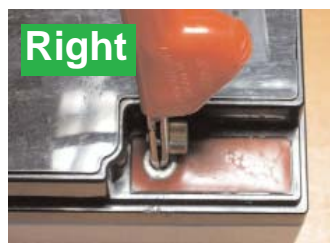
An LED warns against reverse polarity connection. A test button allows verification and repeat testing of battery Ah capacity. The test leads provided (Part No: ACT-GPTL) must only be used with the GOLD-PLUS.

The backlit LCD gives operation and instruction messages and displays accurate battery voltage and available Ah capacity, based on the batteries age, temperature and state of charge.

User instructions for testing Standby SLA batteries and calibrating to Cyclic GEL and Car FLOODED batteries are printed on the front and a table of popular battery Ah sizes and when to recharge or replace is provided on the back. The ABS case includes a flip stand to enable the meter to be positioned at the required angle.

STEP 2: Connecting to the battery.

In order to obtain accurate Ah readings, it is important to connect the clips **TIGHTLY TO BATTERY POSTS AND GOLD-PLUS SOCKETS AS SHOWN**. The bigger the battery, the more critical both connections. **IMPORTANT: DO NOT CONNECT TO HIGH RESISTANCE STEEL BOLTS AS THEY WILL CAUSE LOW, ERRATIC AH READINGS**. Below are examples of the right and wrong way to connect to spade, screw and raised battery posts.



STEP 3: Testing new and used Standby SLA batteries.

- 1: Set Ah calibration to zero position. The zero position is the calibrated setting for testing new and used Standby SLA batteries.
- 2: Connect to isolated battery terminals only. Do not connect to high resistance steel bolts which cause low Ah readings.
- 3: Make tight connections to battery terminals Red+, Black-. After powering up, wait for battery volts to appear.
- 4: Record battery voltage reading. A quantity of 25 Labels are included for recording measurements (Part No: ACT-BTL1).
- 5: Press test button (1 sec) to obtain Ah capacity.
- 6: Record Ah capacity available in the battery. The Ah available is determined by battery age, temperature and state of charge (read STEP 5 below).
- 7: Repeat test to verify capacity if required. The result is calculated in Ampere-hours at the C20hr discharge rate.
- 8: Recharge or replace if 'FLAT BATTERY' or available Ah capacity falls below 65% of battery stated Ah capacity. See table of popular battery sizes on the back of the meter.

STEP 4: Calibrating to Cyclic GEL and Car FLOODED batteries

- 1: Set Ah calibration to zero position. This is the Standby SLA calibration position.
- 2: Connect to a new fully charged battery. Charge battery (6.9V for 6V and 13.8V for 12V batteries) overnight at normal room temperature.
- 3: Make tight connections to battery terminals Red+, Black-. Important: Read STEP 2: Connecting to the battery.
- 4: Record battery voltage reading. Results should be written on a label and attached to the battery.
- 5: Press test button (1 sec) to obtain Ah capacity.
- 6: Adjust Ah calibration as close as possible to match battery stated Ah capacity. Note: If the message shows 'OVER 10Ah' (6V batteries) or 'OVER 100Ah' (12V batteries), it may not be possible to alter the Ah reading.
- 7: Repeat test to verify capacity if required.
- 8: Note Ah position to test these types of batteries. Adjustment sensitivity is variable according to battery Ah capacity.

Once calibrated to match the Ah capacity of a new fully charged battery of a particular brand or type, it is then possible to accurately measure the available Ah capacity in new and used lead acid batteries of the same brand range or type.

STEP 5: Battery age, temperature and state of charge

AGE: Normally after 3 years, there should be about 90% of the stated Ah capacity available in the battery. After 4 years there should be around 65% and about 40% after 5 years.

TEMPERATURE: The Ah capacity on a new fully charged battery is reached when its temperature is between 20 - 25C (68 - 77F). Be aware that at much higher or lower temperatures, the available Ah capacity can be up to 50% higher or lower than stated.

STATE OF CHARGE: To optimise Ah accuracy, where a battery is constantly charged 24 hours a day, it is recommended to apply a load to the battery for a few seconds to remove the surface charge voltage before testing with the GOLD-PLUS.

Battery Testing Tips



- 1: Don't buy flat batteries!

Because lead acid batteries normally self-discharge about 3% per month, it is very important to decipher the date of manufacture code stamped on the battery. This is essential for inventory rotation and to avoid stocking old discharged batteries. If you cannot decipher the date code, contact your supplier or battery manufacturer. Be aware that new batteries can take many months to ship from far eastern manufacturers, before going through your distributor to you.

- 2: Check the voltage.

To avoid potential battery failure problems, it is essential to check the voltage level in new lead acid batteries to ensure that they have been sufficiently charged by the manufacturer before leaving the factory. Any new out-of-the-box battery with less than 6.1V for 6V and 12.2V for 12V must be recharged overnight and retested before use. Generally, a new battery will have above 6.2V for 6V and 12.4V for 12V batteries.

- 3: Constant charge voltage.

Lead acid batteries require a constant voltage, irrespective of Ah capacity size in order to charge efficiently. The optimum charge voltage required is 2.3vpc (volts per cell) which is 6.9V for a three cell 6V battery and 13.8V for a six cell 12V battery. The voltage tolerance is 2.2vpc min and 2.4vpc max. The time taken to fully charge is dependent on battery Ah size of the battery.

- 4: Recharge immediately!

To prevent damage caused by sulphation, lead acid batteries must be recharged immediately after every use. A new 'out-of-the-box' battery should have about 70% of its stated Ah capacity. A battery with a terminal voltage of less than 6.1V for 6V and 12.2V for 12V batteries must be fully charged overnight and retested before use.

- 5: Batteries hate heat!

For maximum life and performance, a lead acid battery should be maintained at between 20 - 25C (68 - 77F). At significantly higher or lower temperatures the Ah capacity available could vary by up to 50%. Be aware that lead acid batteries hate heat. The hotter the battery, the shorter its life!

- 6: Equal capacity.

To ensure maximum efficiency and to avoid charging problems, where two or more lead acid batteries are connected in parallel or series, make sure that they are the same make, type and Ah size and after testing have about equal Ah capacity available.

- 7: When to recharge or replace?

To ensure efficiency, battery manufacturers recommend to recharge or replace the battery when its available Ah capacity falls below 65%. However, if your requirements recommend a higher or lower percentage, then recharge or replace accordingly.

Any questions? Please give us a call on +44 (0)1744 886660 or email batterydoctor@actmeters.com

GOLD-PLUS Specifications

Operating Voltage:	5V - 15V DC Max
Reverse Polarity :	Red LED indication
Battery Types:	Standby SLA, Cyclic GEL & Car FLOODED
Battery Sizes:	6v 1.2Ah - 12Ah 12v 1.2Ah - 100Ah
Ah Capacity Test:	Simulated full 20 hour load test (C20hr) to 10.50VDC performed in 20 seconds. Repeat Ah test 5 seconds.
Applied Pulse Load:	6A for 1.2Ah - 9.9Ah batteries 18A for 10Ah - 100Ah batteries
Ah Calibration:	Calibrated at 0 (zero) position to new, fully charged, premium brand Standby SLA batteries at 20 - 25C (68 - 77F). Ah control (00 - 99) for Cyclic GEL and Car FLOODED batteries above 9Ah.
Battery Table:	Recharge or replace battery when 'FLAT BATTERY' or Ah capacity falls below 65%
Display Type:	Back-lit 13 digit LCD
Flat Battery Warning:	6v <5.25VDC, 12v <12.0VDC
Repeat Test Operation:	Can perform repeat tests or continuously as required
DCV Accuracy:	+/- 2% of displayed reading
Ah Accuracy:	+/- 10% fully charge premium brand C20hr rated SLA batteries at 20 - 25C (68 - 77F)
Case Construction:	High impact ABS
Moisture Protection:	IP54
Size:	H210 x W110 x D41mm
Weight:	0.4kg
In The Box:	GOLD-PLUS Intelligent Battery Tester, ACT-GPTL Test Leads, ACT-430N Soft Carrycase, 25x BTL (Battery Tested Labels) Operating Instructions and Declaration of Conformity
Warranty:	1 Year from date of Invoice
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