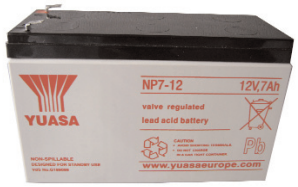
WARNING: ISOLATE THE BATTERY BEFORE TESTING! To test a lead acid battery accurately, you need to know which type you're testing, SLA, GEL or FLOODED?

TYPE SLA: Standby SLA (Sealed Lead Acid) batteries. Normally permanently on charge. Used in standby applications including alarm systems, power supplies, stair lifts etc.

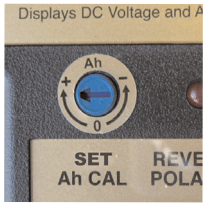


To measure the Ah capacity available in standby SLA batteries, adjust the Ah calibration control to the 'zero' position (i.e. approx six-o'clock) shown below.

NOTE: This position is calibrated to typical standby SLA batteries. If required, Ah adjustment can be made to suit any specific brand.

TYPE GEL: Cyclic GEL (Gelified Electrolyte) batteries. Normally charged then discharged repeatedly. Often used in mobility scooters and golf trollys etc. These batteries are specified GEL technology. If it doesn't state 'GEL' on the battery, it should be tested as a standby SLA battery above.

To measure the Ah capacity available in cyclic GEL technology batteries, adjust the Ah calibration control to the '+' position (i.e. approx nine-o'clock) shown below.



NOTE: This position is calibrated to typical GEL technology batteries. If required Ah, adjustment can be made to suit any specific brand.

Type FLA: Car FLOODED (WET) batteries. Commonly used in motor vehicles and have removable caps so that you can visually check that the acid/water level is above the battery plates.

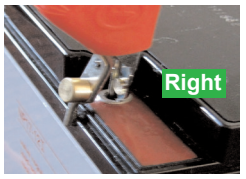
To measure the Ah capacity available in car FLOODED batteries, adjust the Ah calibration control to the '-' position (i.e. approx three-o'clock) shown below.

NOTE: This position is calibrated to typical car FLOODED (WET) batteries. If required, Ah adjustment can be made to suit any specific brand.

Step by step battery testing sequence.

1: Observing polarity, connect the test leads clips **exactly as described** for the types of battery terminals shown above, Red +, Black -. WARNING: Maximum input voltage 15VDC.

Grip clips tightly around tab terminals



Insert clips fully inside battery terminals

Grip tightly around posts using spikes

Do not connect to high resistance bolts

POWERING UP..
ANALYSING BATT.

2: Provided there is sufficient voltage in the battery, the message 'POWERING UP' followed by 'ANALYSING BATT' is displayed. During analysis, a pulsed load removes any excess surface charge.

SET CALIBRATE

3: The message 'SET CALIBRATE' reminds you to check that the Ah CAL position is adjusted to test a standby SLA, cyclic GEL or car FLOODED battery.

TESTING VOLTS..
PLEASE WAIT..

4: The message 'TESTING VOLTS' followed by 'PLEASE WAIT' indicates that the battery tester is automatically selecting to test a 6V or 12V battery.

12.66 VOLTS

5: When the battery voltage appears, record it onto a label for future reference.

PRESS TO TEST

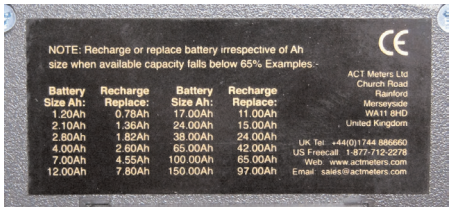
6: When ready, press and hold the test button (approx 1 second) to test the Ah capacity available in the battery.

TESTING Ah..
7.2 Ah

7: Record the Ah reading obtained onto a label for future reference. NOTE: Ah capacity is automatically displayed in three ranges: 1.2Ah - 7.9Ah, 08Ah - 99Ah, then 'OVER 100Ah'

TEST COMPLETE

8: If required, press the test button again, to verify the Ah reading obtained. NOTE: Ah capacity available is determined by battery temperature and state of charge.



9: Recharge or replace when the Ah capacity available in the battery falls below 65% of the stated battery Ah size.

FLAT BATTERY

10: This message indicates low battery voltage or Ah capacity. Recharge or replace the battery and re-test.

HIGH VOLTAGE

11: This warning message indicates that the input voltage exceeds 15V, Remove immediately!

12: Still confused? Read 'Battery Testing Tips' overleaf. Call or email your question.
Tel: +44(0)1744 886660
Email: batterydoctor@actmeters.com

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.

4: Battery surface charge.

When testing batteries just taken off charge, it is important that the excess surface charge voltage (13.8 - 14.4V) is removed in order to measure battery Ah capacity accurately. When 'ANALYSING BATT' is displayed, the GOLD-PLUS applies a pulse load to remove excess surface charge. Ah accuracy is assured below 13.3VDC. If necessary, repeat test to remove surface voltage.

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 manufactures 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 technical@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 - 150Ah
Ah Capacity Test:	Simulated full 20 hour load test (C20hr) performed in just 20 seconds. Repeat Ah test takes just 5 seconds
Applied Pulse Load:	6A for 1.2Ah - 9.9Ah batteries 18A for 10Ah - 150Ah batteries
Ah Calibration:	Calibrated at 0 (zero) position to new, fully charged, popular brand Standby SLA batteries at 20 - 25C (68 - 77F). Ah control (00 - 99) for Cyclic GEL and Car FLOODED batteries according to Ah size
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:	0.6kg
In The Box:	GOLD-PLUS Intelligent Battery Tester, ACT-GPTL Test Leads, ACT-430N Soft Carry Case, 25xBTL (Battery Tested Labels) Operating Instructions and Declaration of Conformity
Warranty:	1 Year from date of Invoice

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GOLD-PLUS Intelligent Battery Tester

Operating Manual R2.21

6/12V GOLD-PLUS

Intelligent Battery Tester

Operating Manual R2.21

This pictorial guide shows how to test popular types of lead acid batteries with the new GOLD-PLUS.

"They say a picture speaks a thousand words but if all else fails read the manual"