

## TESTING POWER-SONIC BATTERIES

### The recommended partnership to assess the state-of-health of Power-Sonic batteries.

Some hand held portable battery testers claim to use specific battery characteristics and algorithms to determine 'Absolute Ah Capacities'. However, these testers cannot test 'true ampere-hour battery capacity'.

In fact, testers that claim to measure Ah capacity across different brands of batteries may create more problems than they resolve. Fire and security alarm installers be aware! False or inaccurate readings can indicate a battery is at the end of its service life when its service life may have actually only just begun!

Percentage errors of portable universal capacity testing meters have been reported to be, in certain instances, greater than 100%.

The Midtronics SCP 6/12 battery conductance tester provides a simple method to determine the state-of-health (as opposed to absolute Ah capacity) of popular sized 6-Volt and 12-Volt SLA (VRLA) batteries enabling service engineers to predict the end-of-life of in-service batteries.

### Right and wrong methods of Midtronics and ACT meter/battery terminal testing points



Grip clips tightly around tab terminals



Insert clips fully inside battery terminals



Grip tightly around posts



Do not connect to high resistance bolts



## Use of Portable Ohmic Hand Held Meters

What ohmic resistance readings cannot do is replace the time honoured discharge test to determine percentage capacity or ampere-hour capacity. Much work has been done and many papers have been written on this subject, but there is no conclusive proof of the concept and it is not an accepted industry technique for capacity determination.

Unfortunately, there are some testers in the market that use ohmic values, sometimes in conjunction with other characteristics of the battery that claim to measure capacity within a short (few second) test period, what's more, they claim the tester is able to measure AH capacity across all brands of batteries.

As the internal design of batteries may vary from one manufacturer to another, this variation only increases the inaccuracies already inherent with this 'unapproved' method of determining Ah capacity. Unfortunately, the end user is unaware of these technical issues and has no means of verifying the accuracy of such products and invariably blindly accepts the results. In some cases the percentage errors across different brands of batteries have been reported to be greater than 100%.

Whilst Power-Sonic, by NO MEANS endorses any meter that claims to provide a capacity measurement based on ohmic readings or similar characteristic, the correction factors given at the end of this document ( fig.2) are to be used specifically with the ACT meter when testing Power-Sonic batteries.

Here are some guidelines to help minimise any additional errors caused by ACT probe to terminal connections and state of charge of batteries:

- To gain a capacity reading of a Power-Sonic battery, please ensure the battery to be tested is fully charged.
- It is possible to alter the test results simply by changing where you place the test clamp or probe - this variable must be controlled by the user in order to obtain consistent results.
- The person operating the test instrument must try to get the best result possible. Some experimentation may be necessary when verifying which test position gives the highest conductance / lowest resistance / highest capacity measurement for a battery.
- It is imperative to ensure a good test contact is made with the battery terminals – the slightest resistance between the probe and the battery terminal will give erroneous results.

When using ACT test meters for estimating Power-Sonic AH battery capacities, the following correction factors should be applied.

PS Series						
MODEL	NOMINAL VOLTAGE V	C20 CAPACITY (Ah)	ACT GOLD	ACT GOLD PLUS	ACT 612	ACT CHROME
PS-1212	12	1.2	0.9	0.85	1	1.1
PS-1221	12	2.1	0.85	1.08	1.1	1
PS-1230	12	3.4	1.05	1.7	0.95	0.95
PS-1242	12	4.5	1.4	1.3	1.3	1.4
PS-1270	12	7	0.85	1.1	1.05	0.9
PS-12120	12	12	1.1	1.25	0.78	0.8
PS-12170	12	17	0.9	1.2	1.2	1.2
PS-12260	12	26	1.8	1.8	2.35	2.4
PG12v21	12	21	1.55	1.5	TBA	1.15

The correction factors should be multiplied by the capacity reading achieved by the ACT meter, to give an approximate Ah capacity of the battery under test.

PLEASE NOTE WHEN USING CORRECTION FACTORS THE 'AH CAL' DIAL POSITION ON THE ACT METER SHOULD BE SET TO ZERO -

If in doubt contact Power-Sonic for further information.



POWER-SONIC EUROPE LIMITED  
(UK)  
(European Head Office)  
3 Buckingham Square  
Hurricane Way  
Wickford, Essex SS11 8YQ

Tel: Main Office: +44 (0)1268 560686  
Customer Service: +44 (0)1268 568571  
Sales & Marketing: +44 (0)1268 568572  
Fax: +44 (0)1268 560902  
Email: Sales@power-sonic.co.uk  
Website: www.power-sonic.co.uk

POWER-SONIC EUROPE LIMITED  
(France)  
5-7 Avenue du Général De Gaulle  
60300 SENLIS

Tél: +33 (0)3 44 32 18 17  
Fax: +33 (0)3 44 32 18 18  
Email: contact@power-sonic-fr.com  
Website: www.power-sonic-fr.com

POWER-SONIC CORPORATION (HQ)  
(USA)  
Power-Sonic Corporation  
7550 Panasonic Way  
San Diego, California 92154  
United States

Tel: 1 (619) 661 2020  
Fax: 1 (619) 661 3650  
Website: www.power-sonic.com