cellchecker™

Lead Acid Pulse Load Battery Tester

Features

- Computes State of Charge for lead acid battery types (SLA, AGM, Gel, Flooded)
- Easy to use, fast test results (15 seconds)
- Patented, high accuracy Pulse Load test
- Test 2-volt, 4-volt, 6-volt, 8-volt, 12-volt
- Ideal for battery management - reduce cost and increase reliability

Applications

- Fire/security
- Battery management
- UPS
- Telecom
- Medical
- Safety
- Industrial
- Auto/marine/RV
- Mobility
- Inspection
- Emergency lighting
- IT
- Manufacturing
- Military
- Access control
- Facility management

Barcode

Specialized Fire Products

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Lead Acid Pulse Load Battery Tester

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Notes:

Product Description

Cellchecker provides a comprehensive means of testing the State of Charge and battery condition for 2V, 4V, 6V, 8V, and 12V lead acid battery types (SLA, AGM, Gel, Wet). This microprocessor-controlled instrument tests popular batteries using a patented, high accuracy pulse load test. A fully automatic test cycle, indicated by 'running' LEDs, begins when the TEST key is pressed. After each pulse-load test, a single LED indicates percentage of remaining battery capacity. Batteries will not be harmed by repeated testing or by maintaining connection after a test cycle. This test set requires 4 AA batteries (not included).

Setup

1) Locate and open the battery compartment cover then install 4 AA alkaline batteries, carefully noting the proper orientation. Replace the battery cover.

2) Install test leads. Press the sheathed banana plugs firmly into the appropriate jacks (note color), rotate the plugs slightly to insure complete seating.

3) Turn on the power switch located on the right side of the tester. One of the MODE LEDs should light.

NOTE: For proper operation, Cellchecker must be powered on before connecting the test leads to a battery.

Testing Batteries

1) Use the MODE button to select the correct range for the size and voltage of the battery to be tested.

Note: ***There are four different 6V and 12V MODES and two 8V MODE options depending on battery capacity. Choose the MODE which corresponds to the battery being tested.***

1) Connect the test leads securely to the battery's terminals. Verify that the red test lead is connected to battery positive (+) and black to battery negative (-).

2) Press the **TEST** button once. All display LEDs should 'run' for 15 seconds indicating a pulse load test in progress. Next, a single LED will remain on indicating the battery's state of charge, or remaining capacity. Make 2-3 tests to verify that the battery has stabilized and is delivering consistent power (especially if the battery is tested directly after being disconnected from a charger).

Understanding Test Results

The following are guidelines for correlating test results to overall battery condition:

1) A battery which repeatedly tests 80% or higher is nearly fully charged and is in good condition. Batteries that are tested directly after being disconnected from float charge should test 80% or greater for 2-3 consecutive tests. A test result of 60% or lower indicates a failing battery.

Specifications

Testing capability (SLA battery)
2v [2-25AH]
4v [2-25AH]
6v [1-4AH, 5-15AH, 16-50AH, 51-200AH]
8v [2-20AH, 21-100AH]
12v [1-4AH, 5-15AH, 16-50AH, 51-200AH]

Power (internal): 4 x AA. Auto self test.

Auto shut-off: After 20 minutes w/o test activity

Pulse load: Varies according to battery type

Testing duration: approx. 15 seconds

Display: 8 LEDs - green, yellow, and red

Test Leads: Solid copper clamps
R/A sheathed banana plugs
48"/122cm flexible test lead wire

Dimensions: 9.25" x 6.25" x 2.00"
23.5cm x 15.9cm x 5.1cm

Weight: 32 oz. / 908g

Accessories

Accessory Kit
This kit includes a protective soft case, suspension crown/hanging strap, and strong magnet. The soft case has a secure Velcro® flap and protects against dirt and impact.

The hanging strap has a quick release buckle for easy fastening to conduit, pipes, ladder rungs, etc. The magnet, which secures to the strap, enables attachment to steel surfaces such as battery cabinets.

Lead Sets
These flexible 48" lead sets feature high strand count 18AW Grubber coated, kinkless lead wire with R/A sheathed banana plugs.

Two types of copper clamps are available:

Clip-type (A) and Plier-type (B)

Batteries which test 60% or lower may be:
a. Not fully charged but otherwise in good condition and still capable of taking a full charge, such as a new/good battery not yet in service.
b. Fully charged but with diminished capacity due to age or excessive charge-discharge cycles.

Note: ***Generally, a battery which has recently been charged or has been on float charge should indicate 80-100% for 2-3 tests. Results of 60% or lower indicate diminished battery capacity. SLA batteries usually have diminished capacity after 35 years of service depending on ambient temperatures and the number of charge-discharge cycles experienced by the battery. New batteries or batteries that have been stored for an extended period of time without use will usually not test above 60-70% until they have been float charged(30 days) or put through several complete charge/discharge cycles.***

3) If LEDs 'run' during a test but no result is displayed:
a. The battery is completely discharged or defective.
b. The MODE is incorrect for that battery.

Techniques for Accurate Test Results

1) Clean connections are important. Verify that the battery's terminals are free of any visible contamination or corrosion.
2) Select the proper MODE for the battery. For example, select "6V 5-15AH" for a 6-volt, 12 AH battery. Using the wrong MODE will not harm the tester, but the test results will be incorrect.

3) Make two tests, 5-10 seconds apart. This verifies that the battery is stabilized and capable of constant power output under the pulse load.

4) Connect the tester's clamps directly to the battery terminals. Any extension or modification to the tester's lead wires can cause testing errors. To insure accurate testing, use only the Cellchecker lead sets (clip or plier type).

5) Disconnect the battery from other circuits before testing. A battery connected to a "float" charging system may test higher than it does out of circuit (stand alone). Cellchecker is designed to test batteries out of circuit only.

Temperature Compensation

SLA batteries exhibit a direct relationship between temperature and their ability to deliver current or maintain voltage under load. The actual capacity of a SLA battery is a function of temperature and the rate of discharge. For example, a battery will indicate a lower state of charge, or lower remaining capacity, as temperature decreases, and will indicate a higher state of charge (SOC) as temperature increases. Cellchecker is designed to test SLA batteries whose ambient temperature is between 50° - 85°F (10°30° C).

The following chart shows the effect of temperature on the test result. Referring to the chart on page 5, notice that a battery whose SOC is 100% will produce a test result of 100% at 68°F. This same battery will produce a test result between 80% and 60% when its

temperature, and the specified cut-off voltage. Most batteries have a rated capacity, expressed in amp-hours (AH), that is based on a 20 hour constant discharge to a cut-off voltage of 1.75v per cell. For example, a 6v battery with a rated capacity of 5AH should deliver 250mA for 20 hours before its voltage drops to 5.25v. Capacity will decrease at higher rates of discharge and increase with lower rates of discharge. A new battery will achieve optimum capacity only after several complete charge-discharge cycles, or by float charging it for at least 30 days.

Self Discharge

Batteries that are stored at room temperature will lose, on average, about 3% of their charge per month through self discharge. Thus a new, fully charged battery which has been stored for a year may test 60% until it is recharged.

Battery Life

SLA batteries will lose capacity through aging. For example, a battery on float charge (stand-by use) will fall to about 60% of its original rated capacity after 3-5 years of service. In cyclic use, a typical battery will produce about 500 charge-discharge cycles before falling to 60% of original rated capacity. Other factors that affect capacity are the depth and rate of discharge, ambient temperature, and charging method.

blink if the TEST button is pressed and no test cycle will be initiated. For example, if 4v MODE is selected and the leads are connected to a 12v battery, the 4V MODE LED will blink and the test button will not function.

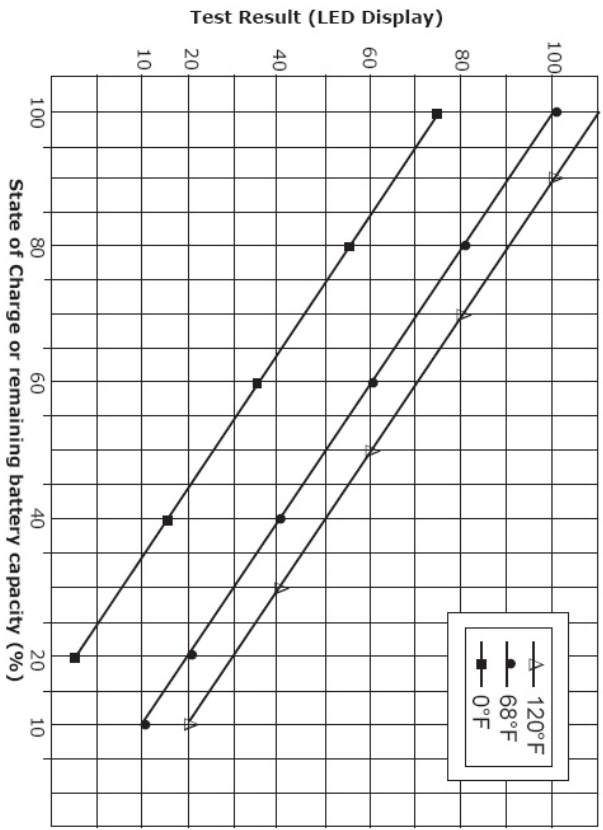
5) The leads should be left connected/plugged into the tester when not in use. This minimizes contamination and helps insure good electrical connection.

Operating Problems / Troubleshooting

1) No operation and no LED activity.
   a. Verify proper orientation of internal AA batteries
   b. Clean the AA battery terminals.
2) Only the two red LEDs (10% & 20%) blink when TEST button is pressed.
   a. This indicates that the tester's 4 AA batteries are low. Replace with 4 new alkaline AA.
3) MODE button has no effect on battery selection or TEST won't begin.
   a. Verify that the test leads are not connected to a battery until after the unit is turned on.
   b. Turn power switch off for 5 seconds, then restart.
   c. Verify test lead polarity is correct.

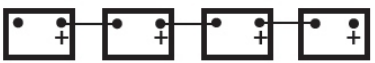
About SLA Batteries

Capacity
This is the total amount of stored energy that is available from a fully charged cell or cells. A battery's actual capacity is dependent upon the rate of discharge, temperature, a specified cut-off voltage.



temperature is 0°F. Conversely, a battery whose SOC is 90% will produce a test result of 100% at 120°F. In all cases, Cellchecker will indicate the actual remaining battery capability that is available at a given temperature.

Testing Multiple Battery Systems
SLA battery cells are nominally 2.15 volts each and are combined in groups to make batteries with 4V, 6V, 8V, and 12V at the terminals. In certain applications, batteries of equal voltage and capacity are connected in series or parallel to increase voltage, capacity or both. For example, four 6v batteries may be connected in series to produce a 24V strand.

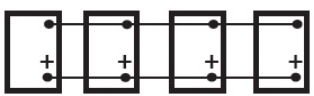


Series connection

When testing batteries which are connected in series, there is no need to remove connections between batteries. Simply test each battery individually, by connecting directly to its terminals.

NOTE: ***Do not connect Cellchecker to sources greater than 12VDC, doing so may damage the tester.***

Parallel Connection
In applications that have high power requirements, SLA batteries are often wired in parallel.



Parallel connection

To test single batteries connected in parallel, it is necessary to disconnect one terminal to test the battery accurately. Testing a group, as shown in the illustration, takes into account all batteries and their inter-connections. This can be done with 6v and 12v systems, where the total AH capacity does not exceed 200AH. Verify that the tester is set to the proper MODE for total amp-hour capacity. A reading below 70% indicates one or more defective batteries or high resistance inter-connections within the group.

Batteries under Charge
It is not recommended that batteries are tested when connected to a charging system. Disconnect the charger for several minutes then test the battery three or more times.

Operating Characteristics & Tips
1) When the power switch (ON/OFF) is turned on, the MODE will be set to the last one used.

2) The internal cooling fan will run while test leads are connected to a battery in the following three MODES: 8V [20+AH] and 12v [16-50AH, 50+AH]. **NOTE:** ***To insure proper cooling, keep side and bottom air vents unobstructed.***

3) Cellchecker will turn off automatically after 20 minutes of no test activity, provided it is NOT connected to a battery. To restart, simply cycle the power switch OFF then back ON.

4) Over-voltage warnings occur when battery voltage is above the selected MODE. The MODE LED will