



Omega battery test protocol with a universal battery tester

RIH Omega batteries can be tested with a (universal) battery tester. To avoid damage due to incorrect connections, special adapter plugs should be used. These adapters can be ordered from the service department. When using a universal tester, follow the protocol below exactly. If this protocol is not followed in its entirety, no warranty or claim of goodwill can be made. There are several battery testers on the market that test the battery in different ways, each with its own advantages and disadvantages. Basically, the measurement method used can be divided into two groups: testers that stop the capacity test :

1. At a predefined total battery voltage of between 30 and 33.5V.
 - o **Advantage:** there is probably no deep discharge
 - o **Disadvantage:** the measurement is interrupted prematurely and therefore does not determine the total capacity of the battery, a residual capacity must be added to the measured value. It is not possible to determine the value of this residual capacity, especially for used $\Omega 3$ cells. With a healthy $\Omega 3$ battery, 5-25% of the capacity will still be available, with an older or weaker battery less.
 - o The measured capacity is not always programmed into the $\Omega 3$ battery.
2. When the battery turns itself off, or when the total battery voltage is 28V.
 - o **Advantage:** the full capacity is measured
 - o The measured capacity is programmed directly into a $\Omega 3$ battery (not into a $\Omega 1/\Omega 2$ battery)
 - o **Disadvantage:** the battery receives a programmed depth of discharge in the battery. This can void the warranty and/or goodwill and permanently damage the battery unless you follow the protocol below.

Test method "2" undoubtedly gives the best results and is therefore preferred. However, the battery must be recharged **immediately** after the test to avoid permanent cell damage due to deep discharge.

Never test a battery that has a malfunction, recognizable by a flashing tail light with charger connected and a message on the display: "Storing - Batterij niet laden-Service vereist door RIH dealer" (Error - Battery not charging - Service required by RIH dealer).

Before starting the capacity test :

- Connect an electric bicycle to the corresponding battery and upgrade if offered. With an Omega 3 battery, at minimum the SWv 3.16 battery software must be installed. Even if no update is offered, after connection, all startup test data is known to RIH, which is necessary.
If the battery's firmware is too old (below 3.16), the battery may remain off after the test and should be sent for service.
- Fully charge the battery; **note:** a $\Omega 3$ battery may take some time to fully charge due to balancing. Continue charging the battery until the tail light has stopped flashing.
- Use only the plug provided by RIH.

When the capacity test is completed:

- Charge the battery immediately to avoid permanent damage due to deep discharge.
- Make another E-bike connection after charging so that the end-of-test data of the battery is known to RIH.
- Contact the service department to set up a report in the system and record the capacity you measured in the $\Omega 1/\Omega 2$ battery.

If you need more information, please contact the RIH service department.