



Replacing the NiCad Battery of PowerSight



Introduction and Important Warnings.

The internal batteries of the PS3000 and PS250 are intended to only be replaced by Summit Technology. However, in certain circumstances Summit Technology provides batteries to customers for replacement. This is a special occurrence and always requires the customer to take responsibility for any damage or errors that arise from the replacement. **If you proceed with the procedure of this document, then you do so with the understanding that this battery -replacement repair is done at your own risk and that Summit Technology's warranty will not cover anything arising out of this attempted repair.**

Opening the case of PowerSight normally voids the warranty. You are being granted permission to remove the case once in order to perform the repair of this procedure.

Even though this procedure may seem to be simple, please be very careful and follow each instruction exactly. The battery voltage is higher than many components are rated and you may inadvertently destroy them. The soldering iron you use may destroy devices through static discharge. Shorting the outputs of the battery with a soldering iron may cause sparks and high current to flow. Care must be taken in reassembling PowerSight to prevent wires from getting smashed between mating surfaces. This can result in failure of the battery or other components months or years later.

Procedure for Changing the NiCad battery of PowerSight

1. You have been supplied with a special NiCad battery. It is rated at 6V for 350mah. It is assembled in a custom configuration in order to fit in PowerSight. Do not remove it from its bag. Do not remove the protective tape from the ends of its wires.
2. You will need a soldering iron for this procedure, preferably an anti-static type with a fine tip. You will need solder for this procedure, preferably fine gage, definitely not acid core flux, preferably "no clean" type flux. You will require wire strippers for this procedure. You will require a solder sucker or solder wicking device in order to remove solder from the printed circuit board.
3. Turn PowerSight off and disconnect all cables from it.
4. If you accept the disclaimers and warnings of the "Introduction" section, remove the four screws securing the back to PowerSight using a Philips head #1 screwdriver. Put them aside in a safe place.
5. Remove the case bottom, attempting to pull it up evenly (don't pry it off!).
6. The existing NiCad battery can be readily seen towards the lower end of the PowerSight unit. It has three wires soldered to the lower circuit board.
7. Using your soldering iron, remove the Red wire (the wire to the right).

- Be careful to not let the soldering iron touch the plastic case since it will quickly melt it.
 - Be careful to not let the soldering iron touch any of the connections of the other circuit components such as the integrated circuit next to the battery connection, since it can quickly destroy those devices through static discharge.
 - Do not let the soldering iron touch two adjacent wires from the battery since that will short the battery and could result in excessive current and sparks.
 - Be careful to not let your soldering iron melt the plastic insulation of the wires from the battery
 - After unsoldering the wire, wrap its exposed end in electrical tape in order to ensure that it does not contact any of the circuitry and accidentally destroy other components.
8. Using your soldering iron, remove the black (middle) wire. Observe all the warnings of the previous step.
 9. Using your soldering iron, remove the green (leftmost) wire. Observe all the warnings of the previous step. The battery is now disconnected and should be put aside. It is a nickel-cadmium battery and should be disposed of in an environmentally sound way. You may return it to Summit Technology for disposal for you at no charge.
 10. Use your solder sucker to remove solder from the 3 holes that the battery wires were connected to. Observe all the warnings of the previous step.
 11. Remove the protective plastic tape from the end of the green wire of the replacement battery. Use your wire stripper to strip off no more than 1/8 inch of insulation from the end of the wire.
 12. Insert the green wire into the leftmost hole and solder it in place using a minimum of solder and keeping the insulation slightly above the printed circuit board surface so it won't be melted during soldering. Observe the warnings of that applied to removing the wires, previously.
 13. Insert the black wire into the middle hole and solder it in place using a minimum of solder and keeping the insulation slightly above the printed circuit board surface so it won't be melted during soldering. Observe the warnings of that applied to removing the wires, previously.
 14. Insert the red wire into the rightmost hole and solder it in place using a minimum of solder and keeping the insulation slightly above the printed circuit board surface so it won't be melted during soldering. Observe the warnings of that applied to removing the wires, previously.
 15. The battery is now electrically connected.
 16. Lay the battery down flat in the area provided for it on top of the active circuitry. The three cell portion is towards the lower end and the two cell portion is farther up from it. It is centered in the width of PowerSight. The wires from the battery are routed around the cells. They do not lay on top of or underneath the high points or low points of the battery pack so they are not pinched.
 17. Re-position the bottom case of PowerSight to cover up the battery and circuitry.



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- **Very important: check that the wires from the battery are not laying across the plastic mounting posts of the cases.** If one of them is, it will be crushed when the cases are tightened together, resulting in failure eventually.
 - Lay the case bottom onto position at the lower end, making sure that it is not hooked onto the serial communications jack.
 - Allow the case bottom to lay down on the main assemblies.
 - Push the case gently away from the serial communications end and downward with one hand. Press in on the plastic end plate where the voltage input connectors are (Va, Vb, Vc, Vn). The case bottom should click into place.
 - Attach the four case screws and tighten evenly and not excessively. We recommend using an electric screwdriver set to minimum torque. Over-tightening will stress the plastic mounting posts, possibly resulting in them breaking off eventually.
18. Do not attempt to turn PowerSight on yet. It is likely that the new battery is fully discharged and won't be able to run PowerSight.
19. Plug the wall charger output (+12VDC) into PowerSight. The charging light to the side of the +12VDC jack should shine red light through the small hole in the case. This indicates that the new battery is charging. If the light is not visible, then either the charger is not supplying 12VDC or the battery was not installed properly.
20. Turn PowerSight on. If the battery was installed successfully, it should be full functioning. It will take 12 hours to fully charge the battery, but it will provide good service after just a few hours.

If you have any suggestion on how to improve this procedure, don't hesitate to let us know. Best of luck to you!

Technical Support
Summit Technology