Battery Cycler vs. Bidirectional Power Supply for Battery Test: Top 10 Considerations

01 LEAKAGE CURRENTS

Is Powering Off Actually "Off"?

Power supplies often contain bleed down resistors to dissipate stored energy, and can become an uncontrolled load, continuing to discharge the battery even when powered off, which can lead to unsafe situations with the battery. NHR Battery Cyclers have built in safety isolation relays not present in power supplies that prevent this powerdraw when turned off.

02 CAPACITANCE

Is Capacitance Good or Bad?

High output capacitance of power supplies result in high inrush/outrush to the battery, increasing safety hazards and damage to the equipment and battery. This inrush causes pitting of the contactors, arcing, and other damage to the safety contactors, causing failures or even uncontrolled damage to the battery itself. NHR Battery Cyclers have very low output capacitance and features a built-in pre-charge circuit designed to prevent current inrush when connecting to and testing a battery.

03 SAFETY

Is Safety Designed into the Product?

Power supplies require add-ons for safety contactors, polarity checkers, and pre-charge circuits, effecting set-up and performance. Adding these components is time intensive and significantly complicates the test set up, adding time delays and additional labor costs. NHR Battery Cyclers have all of these, as well as multiple layers of safety, built-in.

04 SET UP COMPLEXITY

How Complex is the Setup and Integration?

Communication with the battery, and external equipment such as temperature chambers or chillers often requires extensive software development that adds significant time and cost to any battery test set-up. NHR Cyclers and software have key battery test features such as safety already integrated while allowing for easy and flexible integration of third-party tools.

05 SUPPORT

Who do I Contact for Support?

There is no single point of contact when building your own system with bidirectional power supplies. Software, additional safety features, or integration challenges fall on the user to resolve, adding time and cost. NHR is an expert in battery test and your partner in test.

06 SET ACCURACY

How Accurate is the System?

Set accuracy is not typically specified by power supplies. NHR clearly documents empirical control accuracy.

07 SET METHODS & CONTROL

How Easy is it to Use and Control?

NHR Battery Cyclers have operating modes designed to support battery test, and our software solutions provide ready to go control solutions to eliminate integration time and effort. Power supplies involve significant software program development before testing can begin.

08 MEASUREMENT ACCURACY

What is the Measurement Accuracy?

Power supplies are general purpose products, and battery specific measurements such as Ahr or kWhr are often left to the user to track and determine. NHR battery cyclers take precision battery test measurements directly on the hardware, making programming simpler and more effective.

09 CONTROL SPEED

Will the Control Speed Meet Real-World Conditions?

NHR Battery Cyclers are designed with low output capacitance for very fast change of set points, while power supplies which usually have high output capacitance, providing much slower response rates.

10 FUTURE-PROOFING

How Can I Expand the System for Higher Power?

NHR Battery Cyclers are designed to operate in parallel. Power supplies are not easily scalable and all the components need to be sized to the system, further complicating integration challenges.