**Lafayette College: Electrical and Computer Engineering**

08

**Fall**

Accumulator Simulated Load Experiment: EXP-01

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This document contains information about how to set up an experiment to simulate the operation of the accumulator. A simulated load is used for this acquisition. Both one pack and all four in series are documented here.

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# Desired objectives

This experiment should characterize how the packs perform safely. To achieve this the packs will discharge into a simulated load. This will be done in two steps. The first experiment will verify that an individual pack can deliver the expected current. The second experiment will ensure that all of the packs can work together to ensure that the correct current can be driven into the load at the right voltage.

The nominal voltage of 4 packs in series is 89.6VDC. For one pack it is 22.4V. The maximum current that the packs will be asked to draw is 200A. The maximum anticipated voltage is 106.4VDC. The experiments are designed to ensure that no more than 200 A will be drawn in any circumstance.

To run these test a safety plan must have already been agreed and accepted by the ECE Director of Laboratories.

# Required Hardware

* 4 Packs in series
* Simulated load
* Basic GLV safety loop
* PPE per safety plan
* Danger zone per safety plan

# Required Software

None

# Hardware Setup

# Software Setup

# Data

## Desired data

It is desired to get:

* Thevenin voltage
* Temperature of cells

## Thevinin Voltage

|  |  |  |  |
| --- | --- | --- | --- |
| Current | Measured voltage |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

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