

LV Chassis Cerenox 325K Error Solution

Date: February 10, 2017

Time: 1:30 – 2:00

Attendees: Rama Bachimanchi, Pablo Campero, Brian Eng, Ruben Fair, Probir Ghoshal, Tyler Lemon, Renuka Rajput-Ghoshal

1. Overview of 325K error

- 1.1. “325 K error” defined as when a Cerenox read using a LV Chassis jumps to and maintains a temperature reading of 325 K.
- 1.2. Error has occurred seven times since December 2016.
 - 1.2.1. Five times in Coil B Cerenoxes in LV Chassis 4
 - 1.2.2. Two times in VCL splice Cerenoxes in LV Chassis 1
- 1.3. Fix during KPP for 325 K error was to stop and re-start LabVIEW program on LV cRIO.

2. Possible cause (Exact cause of error unknown.)

- 2.1. RS232 communication protocol errors
 - 2.1.1. How LabVIEW handles RS232 communication errors is inherently faulty and causing issues.
 - 2.1.2. Rama Bachimanchi and Christiana Wilson contacted NI throughout 2016. NI did not have any solution.
 - 2.1.3. Increasing time between writing command and reading LV Chassis response decreased frequency of 325K error.

3. Solution attempted to recover from 325 K error

- 3.1. Increase time between writing command and reading LV Chassis response
 - 3.1.1. Time increased from 5 [ms] to 10 [ms].
 - 3.1.2. If a Cerenox sensor reads 325 K, run start-up algorithm for just that Cerenox.
- 3.2. Solution deployed to Torus LV cRIO 2017-02-10 (HBTORUS log entry 3457453).

4. Future course of action

- 4.1. Alternate solution of using a fixed voltage for Cerenox excitations to be investigated.
 - 4.1.1. Using a fixed excitation voltage is how all other LV Chassis sensors are read.
 - 4.1.2. Using a fixed voltage was not approved during meeting due to disagreements on whether that will work well for entire temperature range of Cerenox sensors.