Debugging Chiller Controls Portion of Hardware Interlock LabVIEW Program

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2022-11

Debugging Chiller Controls Portion of Hardware Interlock LabVIEW Program

The Hardware Interlock LabVIEW program has been moved from the development computer to the cRIO that will be used for NPS testing in the EEL building and in the experimental hall. To ensure the program works the same on the cRIO as it does on the development computer, the program is being tested and any issues are being debugged.

One issue that has been noticed is that the chiller controls and monitoring portion of the LabVIEW program no longer works as expected. This portion of the code utilizes eight chiller driver subVIs developed by Mary Ann Antonioli. Each of these subVIs sends a command to the chiller, receives a response, and displays this information to the front panel of the LabVIEW program. This information includes the set temperature, the readback temperature, the pressure, high and low temperature limits and alarm status.

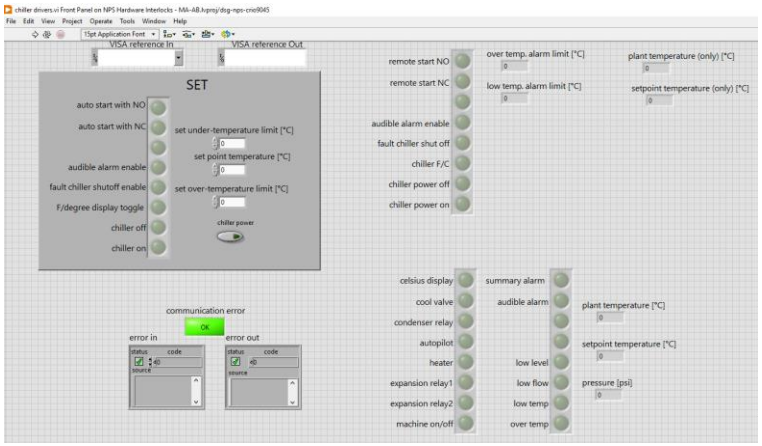

FIG. 1. Screenshot of front panel for chiller controls and monitoring subVI.

- **Debugging chiller controls and monitoring subVI for hardware interlock LabVIEW program**
- **SubVI worked when tested on development computer**
- **Investigating reason for unexpected behavior when run on cRIO**

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Each of these subVIs runs as expected when run separately. They also run as expected in sequence when run on the development computer. So far, I have found no reason for this portion of the program not to work after moving it from the development computer to the cRIO.

One thing I'm going to try is to add a delay into each sequence. I think that part of the problem is that since these subVIs are continually sending commands and receiving responses from the chiller using serial communication, there may not be enough time to receive the complete response from the chiller before the next command is sent. Hopefully by adding in the delays we'll have enough time to receive the full response from the chiller.