Neutral Particle Spectrometer's Control and Monitoring LabVIEW Code, Version 2

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This note presents a problem encountered while testing the second version of the Neutral Particle Spectrometer's (NPS) control and monitoring LabVIEW code and the resolution thereof.

The second version of the NPS control and monitoring LabVIEW code is being developed for ease of use. In the code, because of the ~140 sensors being monitored, sensor arrays were set up for several variables, and these arrays were then broken down into smaller arrays according to their location, such as crystal zone (CZ), electronics zone (EZ), or detector frame (DF), Fig. 1.
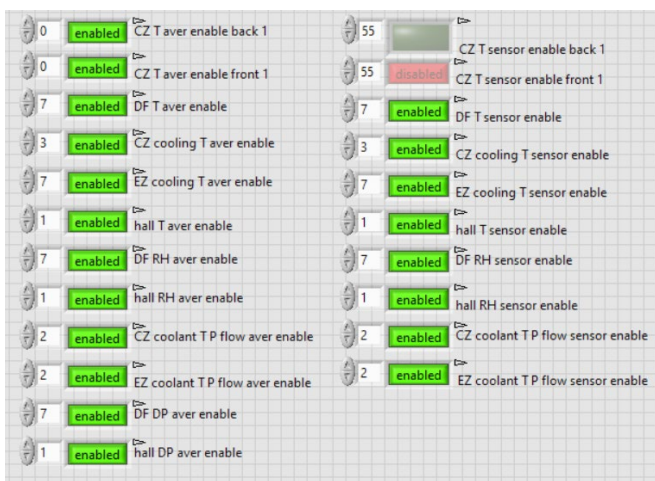

FIG. 1. LabVIEW indicators for arrays in different locations. The grey up and down arrows to the left of the number enable scrolling through the array elements, and the element is indicated by the number shown. To the right of the number is the status indicator and then the label indicating the location.

Testing of the code showed that the sub-array indicators on the LabVIEW front panel for sensor disable, averaging disable, and interlock disable failed to respond, though the section of the code that automatically disables sensor averaging and interlock when a sensor is disabled was functioning correctly.

It was suspected that the front panel indicators were failing to respond due to the multiple arrays (by location) in the code. To fix the issue, the sensor enable array was rebuilt (without the locations) into one array of 150 elements, which resolved the sensor enable indicator problem. The sensor averaging and interlock arrays were also rebuilt and their front panel indicators then responded, Fig. 2.

Testing and debugging of version 2 of the NPS control and monitoring software is continuing.
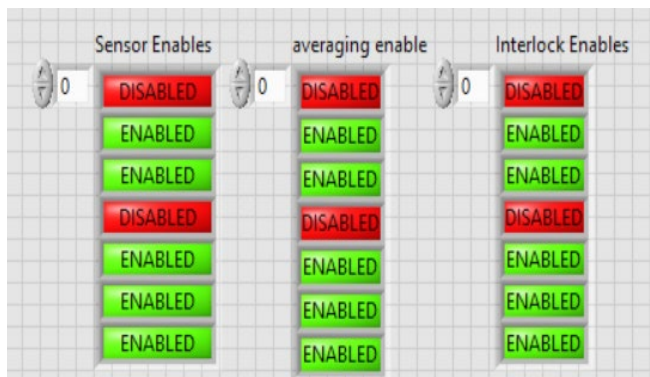

FIG. 2. Correctly functioning indicators for sensor enable, averaging enable, and interlock enable, with each enable as a single array.