

# LabVIEW Code Revisions for NPS Control and Monitoring

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When writing the LabVIEW code that monitors the temperature and humidity sensors for NPS, arrays were used to reduce the number of variables and simplify the code. However, it was discovered that the EPICS alarm server does not work with arrays, but needs a variable for each alarm signal.

There are two types of data transfer when variables are used—when LabVIEW is sending data to EPICS and when EPICS is sending data to LabVIEW. With the first type, the ~165 LabVIEW array variables need to be broken out into individual variables. Figure 1 shows an example where the 56-element array variable for the back crystal zone temperature trip delay values is sent into a for loop. Within the for loop are 56 cases (0–55), one for each individual back crystal zone temperature trip delay value. The for loop runs 56 times (the number of elements in the array), sending the value of each array element to the associated variable.

- **Making revisions to the LabVIEW NPS control and monitoring code**
- **Two types of for loops need to be created to either break out array variables into individual variables or build individual variables into array variable**

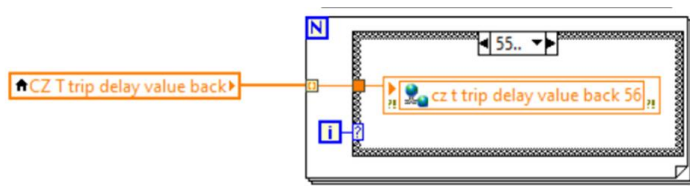


FIG. 1. Screenshot of example code for array elements being broken out into individual variables.

# Changes to Phoebus Screens for NPS

For the case, EPICS sends data to LabVIEW, the individual variables need to be built into the LabVIEW array. Figure 2 shows an example where the same 56 variables for individual back crystal zone temperature trip delay values are made into an array of 56 elements. There are 56 cases, each containing a variable, within a for loop. The loop runs 56 times, building the 56-element array variable for the back crystal zone temperature trip delay values.

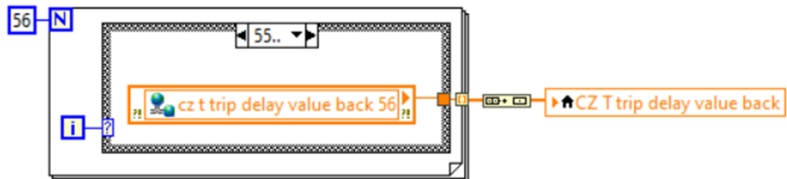


FIG. 2. Screenshot of example code for individual variables being built into array.

Program development of for-loops is on-going.