

Slow Control GUI for Pico Shaper/Discriminator and 3420 CFD

- On the desktop, open LabVIEW 8.0. The program is called **Top_Level_Ctrl_Current.vi**.
 - File→Open→Desktop→James Labview Info→Pico_CFD_Ctrl
- The panel that opens contains buttons, indicators, and file paths. Their functionalities will each be explained briefly below.
 - **‘Gain/Threshold File to Read’**
 - Specify the file path of the CAMAC crate configuration file.
 - The default is C:\Slow Ctrl\camac_config.txt.
The configuration file is as follows:

<u>Slot No.</u>	<u>Module ID</u>	<u>Gain/Thr Ch0-15</u>
1	1000 = vacant	.
.	1001 = PICO shaper	.
.	1002 = PICO discrim	.
.	1003 = 3420 CFD	.
 - **‘Base File Path’**
 - Each time a configuration file is written (explained below), the file is designated by a system timestamp. This file name will be appended to the base path the user specifies.
 - The default is C:\Slow Ctrl.
 - **‘Written File Path’**
 - An indicator to show the full path of the written file.
 - **‘Show Channel’**
 - Press F3 and [Enter] or click with the mouse (and similarly for the rest of the buttons) to inspect a Pico shaper channel. This button simultaneously allows the user to inspect the same channel on a Pico discriminator for a dual Pico shaper/discriminator module.
 - Note: This button must be pressed before using the *Prev/Next* functions (below).
 - The 4 indicators (*Slot Number, Channel Number, Gain, Threshold*) are active only when the *Show Channel, Show Prev, and Show Next* functions are being used.
 - **‘Show Prev’ and ‘Show Next’**
 - Step incrementally through each channel of a Pico shaper after pressing the *Show Channel* button.
 - When the first channel and last channel are reached with *Show Prev* and *Show Next*, respectively, the user can step to Ch. 0 of the next lowest or highest occupied slot.
 - **‘Set Single Thr’**
 - Set a single channel threshold for a Pico discriminator module.
 - **‘Set Range Thr’**
 - Set a range of channel thresholds within a single Pico discriminator module.
 - **‘Set Single Gain’**

- Set a single channel gain for a Pico shaper module.
- **‘Set Range Gains’**
 - Set a range of channel gains within a single Pico shaper module.
- **‘Set Single CFD Thr’**
 - Press Shift+F2 to set a single channel threshold for a LeCroy 3420 CFD module.
- **‘Set CFD Slot Thr’**
 - Set a threshold for all 16 channels of a 3420 CFD module.
- **‘Read CFD Slot Thr’**
 - Read the threshold values for all 16 channels of a 3420 CFD module.
- **‘Mask/Unmask All’**
 - Mask or unmask all 3420 CFD channels across the entire crate.
 - The LED indicator is green if all channels are unmasked and is red otherwise, indicating that either all channels are masked or that the system is selectively masked.
- **‘Set CFD Mask’**
 - Mask or unmask individual channels of a single 3420 CFD module.
- **‘Read CFD Slot Mask’**
 - Read the mask state for all 16 channels of a 3420 CFD module.
- **‘Write to File’**
 - Writes the current gain/threshold configuration across the crate to a time-stamped file (shown in the *Written File Path* indicator) and also writes the current mask configuration across the crate to the file *mask.txt*.
 - Note: This is the only function that updates the *mask.txt* file.
- **‘Reload Gn/Thr/Msk’**
 - Reloads the current gain/threshold and mask configuration to the crate.
- **‘Stop’**
 - Stops the running VI (virtual instrument)

Further Comments:

- When the VI is first run:
 - All gains and thresholds are written to the appropriate slots based on the file that is specified in the *Gain/Threshold File to Read* indicator, so choose this file before running the VI.
 - All masks are written to the appropriate slots based on the file *mask.txt*.
 - A dead time value of 79 is written to all 3420 CFD modules.
- The VI is designed for dual PICO shaper/discriminator modules so, if single modules are used, be sure to position the discriminator just to the right of the shaper in order for the inspect functions to work properly.