Index Panel

History Buffers

August 29, 1990

Author: *Ralph Johnson*   **Subsystem:** *SLC*   **User Impact:** *Some*

Panel Changes: *Few*   **Documents:** *No*   **Help File:** *No*

History data for SLC devices and parameters is now being saved on a long term basis. Each week the previous week's history data is "compressed" into a set of files. At present this "compression" means that the first data point in each 2 hour period is saved. Saving the first data point rather than the average of all data points within the 2 hour period results in small variations not being apparent. However, there are some parameters whose values typically lie within discrete intervals, thus averaging would show uncharacteristic values. If required, the software can be modified to permit compression of certain data by averaging.

The history plots now limit the number of points plotted to a maximum of 1440. There are buttons on the plot control panels which allow one to select a smaller maximum and to reset the maximum to the default of 1440. As with the data compression, the plots do not average the data if there are more points available than the maximum to be plotted. The total time interval of the plot is divided into the number of points allowed and the first data point in each period is plotted. Enhancements to the plotting could be implemented to provide the option of averaging the data and including error bars which give the maximum and minimum or the standard deviation of the points averaged.

A "LAST WEEK" selection button has been added to the history plot control panels. Until now the "FULL" button would give a week long plot as only a week's worth of data was available. This button will now plot all available data points. However, be aware that data older than a week must be retrieved from a set of archive files and may involve a large number of data points. This may cause a significant delay in producing the plot.

To reduce plotting time, if there are more than 100 data points per plot, the display of characters for data points is suppressed, and the points are merely connected with straight lines.

Please note that a plot containing both compressed and uncompressed data shows the data as it is in time. The older data will have data points 2 hours apart while the recent data will have more closely spaced data points. The earlier data will show less variational structure than the recent one.

GPIB Data Available from Correlation Plots

August 27, 1990

Author: *Lou Sanchez-Chopitea*   **Subsystem:** *SLC*   **User Impact:** *Small*
Panel Changes: *None*   **Documents:** *Yes*   **Help File:** *None*

In order to facilitate development of automated tuning procedures using remote scopes or other GPIB readable devices, the Correlation Plot PHYS variables have been expanded to allow the user to specify a DCL script file to be executed for each data sample. This script makes it possible to execute a sequence of commands to set up a remote scope for a particular measurement and then read out a measured value such as rise time or pulse height. At the end of the script, the value of interest is returned to the Correlation Plots as data for the current sample.

The user selects a desired sample variable by entering PHYS followed by micro and the 8 character mnemonic for the script of interest. Help for micro lists all micros either with existing scripts or with other PHYS variables like Final Focus Energy or Emittance measured from wire scans. Help for variable name lists all scripts or other variables in the selected micro. The variable names are limited to 8 characters but may be shorter.

These script files are in a special directory SLCPHYS and have file names such as LI00_CIDBUNCH.COM (the _ is required). Typically they will use the standard Camac diagnostic program CAMCOM to execute a sequence of GPIB commands, although they may in fact invoke any procedure which outputs a single real number. The casual user will not be expected to know or understand the file contents which will be setup in advance by operations and other GPIB wizards. There is as yet no mechanism for passing any error bars on the measured value back to the Correlation Plots, or to flag a bad measurement apart from an unreasonable value ($> 10^{37}$).

For more details on the setup of the script files see DOC$GUIDE:CRR_PHYS_SCRIPTS.LATEX.

Scope Setup Macros

August 29, 1990

Author: *Shane Cooper*   **Subsystem:** *SLC*   **User Impact:** *Large*
Panel Changes: *Many*   **Documents:** *Yes*   **Help File:** *Yes*

Several new panels have been created to allow the operators to quickly recall commonly used setups for scopes. The included scopes are:

hp1, fast positron, cid plic, wta plic, rtl plic, 4×6 plic

The panels for cid plic, wta plic, rtl plic, and the 4×6 plic scopes are called SAVE SETUP and RECALL SETUP and are accessed from the main panel for each scope. The hp1 and the fast positron scope panels act as gateways to the main panel for these scopes.

The setup buttons invoke button macros for performing the desired operations. The manual methods for setting up these scopes have also been retained. Help is available for all the buttons, and is descriptive enough to inform the operator of the type of setup being used.

These panels contain additional functions including the ability to set the beam prompt, change intensities, and to plot at MCC.

An extensive memo describing the details of the setup operation including a complete functional chart is available from the author.

Error Propagation in Emittance Software

Author: *Mike Glaviano*
Panel Changes: *None*

Subsystem: *SLC*
Documents: *None*

August 28, 1990
User Impact: *Small*
Help File: *None*

For quite some time there have been occasional problems with floating point exceptions during the emittance calculation step. These have been associated with the propagation (via the transfer matrices) of the calculated error values between the stepped quad and the profile monitor, and they have occurred only when the user has *manually* entered the A, B, and C of the beam width parabola. Since in this case the error calculations are meaningless, the code has been changed to no longer try to propagate the values between the quad and the monitor. Instead the software issues an informational message telling you that error values won't be propagated. Errors will continue to be propagated normally if you actually do the data acquisition via the emittance software.

Damping Ring Klystrons on All Sector Displays

Author: *Bob Hall*
Panel Changes: *None*

Subsystem: *SLC*
Documents: *No*

August 27, 1990
User Impact: *Small*
Help File: *None*

Information for damping ring klystrons is now available for several displays on the All Sector Klystron Displays panel when the Z-plot Display Type is toggled to NUMERIC. Damping ring klystron information has been added to all numeric displays on this panel for all displays that can have full range Z-plots when the Z-plot Display Type is toggled to GRAPHIC. The graphic Z-plots for these full range displays will continue to only show information for sectors LI00–LI30.

Rehydration of Damping Ring Diagnostic Scope

Author: *Jon Shade*
Panel Changes: *Few*

Subsystem: *Damping Rings*
Documents: *No*

August 24, 1990
User Impact: *Large*
Help File: *Yes*

A new front-end panel has been created for the Damping Ring Diagnostic Scope. In order to switch the scope to a new signal, one merely has to press the given preset button. There are 24 button macros for directing the scope at each of the 3 parts of the 8 available signals. The macros only assume that the proper beam code is in the prompt.

There is ample help for the buttons describing the presets they recall, and the global help for the panel includes a table of useful beam codes.