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SLC Control Program

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Histogramming of History Buffer Data

October 21, 1993

Author: *Catherine Puzo* **Subsystem:** *SLC* **User Impact:** *Small*
Panel Changes: *Few* **Documents:** *No* **Help File:** *Yes*

A newly added feature of the history data facility allows histogramming of selected data. A histogram is generated using the data points from the last history plot display. Hence, to obtain a histogram for any device or variable, first produce a standard history plot, including selection of the desired x and y axis scales, and then select one of the histogram buttons.

Two new buttons have been added to the relevant **History Buffer Plot** panels to facilitate data histogramming. The [PLOT HISTO GRAM] button uses the data from the last history display to draw a histogram. All the selected options, including manual scaling and "Ignore Flyer" are taken into account while producing the histogram. The [NUMBER OF BINS] button sets the number of bins used to define the histogram. The allowable range of bins is 1 – 999, and the default setting is 30 bins.

Software Support for the New Polarized Source

October 21, 1993

Author: *Karey Krauter* **Subsystem:** *CID* **User Impact:** *Small*
Panel Changes: *New Panel* **Documents:** *Yes* **Help File:** *Yes*

Software has been released in support of PMON, the new polarized source hardware recently installed at CID. A new panel paralleling the old Circular polarization control panel has been created and may be accessed with the [PMON POLAR PANEL] button from the **Polar Source Control** panel.

The PMON control panel is similar to the old Circular control panel in that one may set the left voltage setpoint, the right voltage setpoint, and the zero voltage setpoint, and the mode (which may be left or right or zero or alternating or random). The status display shows the voltage setpoints and mode available from the database, the last setpoints written to the PMON hardware, and the hardware readback values to verify what was written. There is complete online help for the buttons on this new panel explaining their details.

The new hardware is controlled by the LC00 micro. Database entries corresponding to the new hardware use the same primary name, CIRP, as the old hardware. Units 1 and 2 in the database contain information about the CP and PS pockles cells respectively.

There is history buffer support for the database entries, for the voltage readback secondaries LHVV, RHVV, and ZHVV (this existed for the old hardware already). Additionally there is now history buffer support for the voltage setpoint secondaries LPHV, RPHV, and ZPHV. The canned history buffer panel (see **Polar Source Display panel**, then **Calcd Polar Hstrys**) has been extended to include the LC00 PMON hardware as well as the old LI00 CIRC hardware, even though only one version of the hardware will be in operation at a time.

Correlation plot support is also available for the voltage readback secondaries (as sample variables: LHVV, RHVV, and ZHVV) versus the voltage setpoint secondaries (as step variables: LPHV, RPHV, and ZPHV).

SDS Changes

September 14, 1993

Author: *Ralph Johnson* **Subsystem:** *Summary Displays* **User Impact:** *Some*
Panel Changes: *Few* **Documents:** *No* **Help File:** *No*

The SDS display buttons on the special displays panel have been changed to provide the ability to look at lists of devices which are associated with the current machine operating mode or the currently selected local SCP mode. This allows "looking ahead" to the next running mode for checkout purposes.

There are now four buttons on the panel in the lower left corner. They are, from top to bottom:

MACHIN MODE with a shadow indicating the currently selected mode. This is the same button as is found on the operation's panel. Use it to select the local mode for the SCP, *e.g.* SLCPOL or CIDESA.

SDS MODE with a shadow indicating LOCAL or GLOBAL mode selected. This is used to select the use of the current local mode as shown on the above button, or the global machine mode when selecting an SDS panel using either of the following buttons.

SDS MPS

for selecting the SDS panel used to display the MPS/PPS devices for the currently selected local or global mode.

SDS SUMY

for selecting the SDS panel used to display the devices included in the device summary display for the currently selected local or global mode.

NOTE: The SDS severity of individual devices as shown in display lists can be different for different modes. For example, an "IN" state can be defined as "OK" for one mode and "ERROR" for another mode. Also, while a device is set to be ignored by the access procedures, its SDS severity for the "GLOBAL MODE" in the database remains unchanged. If you set the "LOCAL MODE", the SCP will display the device's SDS severity based on its current state which may be different than when the device was set to be ignored.

Fast Feedback Rate Control

October 7, 1993

Author: *Linda Hendrickson* **Subsystem:** *FBCK* **User Impact:** *Small*
Panel Changes: *None* **Documents:** *Yes* **Help File:** *No*

Recent software changes allow improved database control over the rates that fast feedback loops will run. These are controlled by DBEDITing the database values in FBCK PSYN. The first PSYN value is associated with the rate at which a fast feedback loop processes measurements and calculates states. This value determines the period at which the feedback loop runs, in 360 Hertz ticks. For example, if the feedback loop is to run at 20 Hz, the first PSYN value is 18. Modifying this value can allow control over the CPU usage on a feedback micro. It is hoped that this may simplify some of the fast feedback requirements for regional beam codes configurations. Note that this feature should not be used to limit the CPU usage for cascaded fast feedback loops; these loops must be synchronized with each other, so the beam code modifier scheduling for cascaded feedback loops must not supply data at a faster rate than the PSYN value indicates.

The second PSYN value allows control over how frequently a feedback loop will modify its actuators. This is expected to be used for upcoming new feedback loops which will control LGPS devices and also pulsed correctors. Due to hardware constraints, these devices should not be modified at the beam rate. It may still be desirable for the feedback loops to process measurements at a higher rate in order to average the input data. As an example, if we wish a feedback loop to process measurements at 60 Hz and modify actuators at 10 Hz, the first two PSYN values are 6 and 36.

Wire Scanner Database changes

October 13, 1993

Author: *Linda Hendrickson* **Subsystem:** *WIRE* **User Impact:** *Small*
Panel Changes: *None* **Documents:** *No* **Help File:** *No*

Recently, database and software changes have been implemented for all "FLY" type wire scanners. This affects most wire scanners used in the SLC. The effect of the database changes has been to remove a scale factor of $\sqrt{2}$ both from the WIRE and associated STEP databases. These changes should not be apparent to most users. The wire scan ranges and resulting beam size measurements should be the same as before. However, the STEP VACT value will now reflect the physical motion of the stepping motor, in millimeters, regardless of the geometric orientation of the scanner. Originally, the STEP VACT represented a projection of the diagonal stepper motion onto the horizontal or vertical axis, resulting in a factor of $\sqrt{2}$ in the databases. The wire PARK and RETRact positions have been changed so that the wires are PARKed at the same physical location as previously even though the STEP VACT is changed.

New Configurable (1553) Module Displays

November 18, 1993

Author: *Daniel Van Olst* **Subsystem:** *CAMAC/MPS* **User Impact:** *Small*
Panel Changes: *Few* **Documents:** *No* **Help File:** *Yes*

There are now two new displays that allow information about Configurable CAMAC Modules (also known as "1553" modules) to be obtained from the SCP. Configurable CAMAC Modules are CAMAC modules that have the capability of having their internal characteristics changed (such as filtering time, polarity, trip level, etc). Configurable CAMAC modules are also the source of information about the accelerator for the MPS System.

The first display is the "Module Status Display" which shows general information about Configurable Modules, such as their CAMAC and 1553 location. The second display is the "Module Configure Display" which shows the configurable characteristics of these Modules.

These displays are available from two different panels. To look at modules that are protected by the MPS System, use the displays on the MPS Module Panel (available off the MPS Device Panel, which can be reached from the New MPS System Panel). To look at modules that are not protected by the MPS System, use the displays on the CAMAC Module Panel (available at present off the MPS Module Panel).

See HELP on these panels for further information on the displays.

BPM Buffered Acquisition Tips

September 1, 1993

Author: *Ron Chestnut* **Subsystem:** *SLC* **User Impact:** *none*
Panel Changes: *none* **Documents:** *none* **Help File:** *none*

This reminder is prompted by a recent problem in the control room concerning acquiring BPM buffered data, and attempting to filter the data on polarization state in the absence of Veto information.

The first unit selected for the buffered acquisition determines from which micro the "administrative" data,*i.e.* time slot, and polarization information are taken. The data from different micros are matched by the pulse id number. In the recent case, the FF01 Veto information was missing, so switching the order of acquisition, and getting FF11 data as the first unit allowed the desired data filtering to work. Another place where this is always of interest is LC00 which has no veto module.

The software has been augmented to issue a warning when the first unit does not have access to the Veto data.