

Index Panel

SLAC's Software Engineering Newsletter

SLC Control

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Program

January 10, 1992

All that Fits is News to Print

Vol. 6, No. 1

VVS Set Entry Loop

January 7, 1992

Author: Sandra Bes

Subsystem: Linac

User Impact: Large

Panel Changes: Many

Documents: No

Help File: None

The VVS SET ENTRY LOOP is a current loop that provides a redundant status to the PPS to ensure the VVS's are off for the purpose of setting entry to the LINAC. This system is considered to be a replacement for the SET ENTRY TONE LOOP previously used for this purpose. The following is an overview of Panel facilities provided for this system. Of primary interest to the user will be the ENTRY LOOP SUMMARY STATUS and ENTRY PERMIT STATE on the Accelerator PPS Panel. These function in the same way the previous TONE LOOP STATUS and ENTRY PERMIT did, but it is important to realize that the underlying hardware providing this status has changed. The ENTRY LOOP SUMMARY STATUS is a summary of bits that are made up or are "complete" if all the VVS's are off. These two bits are the Chain A and B Loop Complete bits and are read out in LI30. If all the VVS's are off, both the A and B loops should be complete. The LOOP SUMMARY STATUS should therefore be complete if all the VVS's are off.

The ENTRY PERMIT STATE is a summary of the two Chain A and B latched status bits in LI30. The Loop Chain is latched and the Permit State is given when all the VVS's are off.

To find out the loop status in each sector, select

ENTRY
LOOP
PANEL

from the Accelerator PPS panel. A

summary display shows the status of the loop in all sectors. A box for a sector is green if all the VVS's in that sector are off. Select Display All Inputs to list the VVS off bit for Chain A and Chain B in that sector, the Trip Summary status, and the Control Point status. If the VVS's are off, BOTH

Chain A AND Chain B status should be OFF. To reset after a trip has occurred, select

ENTRY
LOOP
DIAG

then

LOOP
RESET
PANEL

and push the RESET for that sector (this is sort of a "clear all" for the modules

in that sector). Going back to the ENTRY LOOP PANEL, The TRIP SUMMARY for that sector should now be OK. The TRIP SUMMARY will always be faulted if the VVS's are on. In general, the Control Point should be remote.

Loop Analog Status, also on the Entry Loop Panel, displays the current and voltage of the loop in each sector. In general there should be a current and voltage increase across the loop. The ground current should always be zero.

Similarly, the Loop Diagnostic Panels display the loop status as shown on the loop summary panel. These panels are primarily intended to be used by those performing system maintenance, or for evaluating system problems.

Xwindows Cows and Calves

December 19, 1991

Author: *Ralph Johnson*

Subsystem: *Scp*

User Impact: *Some*

Panel Changes: *None*

Documents: *No*

Help File: *No*

The Xwindows SCP has been upgraded, primarily to fix some internal problems. However, in the process the following items have been fixed or improved.

- Stepping a knob is more secure. In fact, knobs in general should start, stop, and step better.
- The keyboard focus is now securely set to the pop-up dialog window whenever it appears. Previously, it would not always be set correctly so that one had to first click on the window before being able to enter a response.
- Unless you have specifically changed the keyboard focus to the message window, the terminal window, or some other non-SCP window, the focus should remain on the touchpanel window. The only exception would be when the dialog box has been popped up. As long as the focus is on the touchpanel window, you can use control-C to cancel an operation, and use the function keys to invoke Cater, button macros, or other functions without having to first click on the terminal window to change the keyboard focus to it. When you invoke Cater you must click on the terminal window where it appears before making entries. You must then click on the touchpanel window after you have finished with Cater.
- Previously all mouse button clicks were processed within the SCP. This could result in an unwanted button push if one of the clicks resulted in a panel change. Now, whenever a panel is selected, any pending mouse clicks are discarded.
- Button macro Messages now appear as they are generated, rather than at "random" times or only when the macro has finished.

New Release of Magnet Software

January 8, 1992

Author: *Nan Phinney*

Subsystem: *All*

User Impact: *Small*

Panel Changes: *None*

Documents: *No*

Help File: *None*

The magnet and analog control software in the micros has been enhanced to fix some outstanding problems with Standardizing and Trimming devices.

1. When Standardizing Linac Quads with shunts or boosters attached to an LGPS large supply, it was necessary to select ALL MAGNET in order to have the devices standardize and trim correctly. This has been improved so the Quads standardize when one or ALL QUADS are selected which is more user-friendly. (CATERS)

2. The algorithm for detecting loss of standardization has been improved. Power Conversion has pointed out that the previous code was only sensitive to jumps in current against the direction of standardization. In addition the standardized flag would be lost if there was any change in the DAC against the direction of standardization, no matter how small. This did not correctly reflect the state of the magnet. A specification for an improved algorithm was written several months ago.

In the new release, the software computes the maximum current ever read back from the supply (or minimum for supplies which set going down) and saves the value in a new database value, IMAX. For shunt or booster Quads, IMAX contains the total current through the magnet from the LGPS and shunt/booster supply. Standardize is now lost whenever the current is more than the check tolerance away from IMAX against the direction of standardization. This should be sensitive symmetrically to jumps either up or down. It is also more tolerant of small changes. The error messages now indicate exactly what action caused standardize to be lost and knob handling of standardize has been improved.

3. To eliminate problems with trimming eccentric devices, it is now possible to specify that Trim should calculate an absolute setting for the DAC using the DVI or DVIC polynomial. As a result of the Magnet Task Force requested improvements, Trim usually calculates an increment to the DAC based on the current readback and the current DAC setting. For devices which are not truly monotonic or which have non-standard behavior near zero, it is possible to get into a situation where the readback does not correspond to the DAC setting. In these cases, the device will not Trim using the increment method. Examples are the Single Beam Dumpers, Fast Feed Forward Control channels, and the old controls for moving the Sector 30 Off-axis screens. A new hardware descriptor bit, HDSC_ABSTRIM (0008 hex) specifies that the (older) absolute DAC calculation method should be used.

Ignored Devices in Summary Displays

December 31, 1991

Author: *Ralph Johnson*

Subsystem: *All*

User Impact: *Some*

Panel Changes: *None*

Documents: *No*

Help File: *No*

The Summary Status Display which is shown on monitors above the operator consoles in the control room has been changed slightly. This is the display having a grid of summary boxes.

- The software has been modified so that magnets that are turned off as part of an access procedure, no longer generate error messages. After returning to no access, the magnets will generate messages and the errors are included in the appropriate summary box. There is no change to this logic.
- Previously if a box was green (all ok) and there were devices in that summary which were being ignored, there would be a white asterisk shown in the box. If the box was not green the asterisk would not be present. Now an asterisk will appear in a box of any color whenever any device in the box's summary has been marked to be ignored.

During normal operations there should be no asterisks appearing on the display.

Summary Messages

December 31, 1991

Author: *Ralph Johnson***Subsystem:** *All***User Impact:** *Some***Panel Changes:** *None***Documents:** *No***Help File:** *No*

There are scrolling messages which appear on the overhead displays of the operator consoles. These messages are also sent to the error logging process. The messages which indicate an "out of tolerance" for magnets now contain some additional information. The ratio $ABS(BACT-BDES)/TOLERANCE$ is now shown at the end of the message. As there are only 4 character positions available, a ratio greater than 999 is shown as ">999". A ratio less than 1.1 is shown as "<1.1". A ratio of 1.0 or less indicates a value that is within tolerance, and hence the ratio at the time it was out of tolerance is not known. In this case the text is marked as "???". This can occur when a device value is changing rapidly as there is a delay between the detection of the out of tolerance state and the calculation of the ratio.

BPM Bunch Delay Changes

December 11, 1991

Author: *Linda Hendrickson***Subsystem:** *BPMO***User Impact:** *Small***Panel Changes:** *No***Documents:** *No***Help File:** *No*

BPM software has been modified to change the handling of user-entered bunch delays in response to a cater problem. In the previous software, if the user had EVER entered a bunch delay for a BPM measurement definition, the bunch delay associated with the public calibration would not be automatically used. At the time a calibration is made public, the bunch delay in use becomes the default for other users unless they have manually entered a private bunch delay.

In the new software, if the user has entered a bunch delay which is not equal to the public calibration value and the public calibration was made more recently than the time the user entered the bunch delay, the user must confirm that a private bunch delay is really desired. If not, the measurement definition is automatically updated to use the public bunch delay. If the user does confirm the use of a private bunch delay, he/she is not prompted again until after the next calibration is made public.

BPM Timeslot Difference Displays

December 3, 1991

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

A new BPM special display has been added to show the difference between BPM data measured on timeslot 1 and timeslot 4. From the BPM measurement panel, the user should first select a

measurement definition of interest and select a range of micros. Then the

SETUP
SPECL
DISPLY

button should

be selected and the TSDIFF option should be entered. When the user selects the

START-
STOP
DATA

button

a display is generated showing the difference between measurements using timeslots 1 and 4.

Enhancements to the Wire History Plot Panel*December 11, 1991***Author:** *Ron MacKenzie***Subsystem:** *SLC***User Impact:** *Small***Panel Changes:** *Few***Documents:** *No***Help File:** *No*

A few small changes have been made to the Wire History Plot Panel.

- Two new buttons, labeled NEXT UNIT and PREVIOUS UNIT, have been added to the panel. These buttons avoid the hassle of returning to the previous panel to select a unit or having to remember what the valid unit numbers are for use with the ENTER UNIT button.
- An informational message is now displayed next to the emittance plot buttons indicating whether the currently selected micro and unit are valid for emittance plotting. A valid unit is one which is the first of a set of four wires for a given micro.

New ERROR Panel Button*January 6, 1992***Author:** *Ron Chestnut***Subsystem:** *SCP***User Impact:** *None***Panel Changes:** *Few***Documents:** *No***Help File:** *None*

A button

TOGGLE
GLOBAL
MESSAG

has been added to the ERRORS panel (INDEX → SPECIAL DISPLAY →

ERRORS PANEL,) which shows the status of global message selection and lets the status be toggled ON/ OFF. This supplements, and does NOT supplant the function key toggles (F4 and F5). The status is updated upon entry to the panel or upon pushing the button; to see the effects of pressing function keys to change the status, you must exit and re-enter the panel.