Hall C User Howto
Experiment : HKS
How to operate the Target latter

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Abstract

This document shows how to control the target ladder on GUI.

1   Outline

The E05-115, HKS-HES, experiment measures various targets for two month beamtime. To reduce the beamtime loss for target exchange in hand, we put six solid targets and water cell target on one target ladder. The target ladder is fixed to XY stage, and can move to longitudinal direction by a stepping motor. This stepping motor is S23 produced by IDC motion corporation. The motor control lines are connected to a encoder (S6961) which is located in the power supply station beside of the hall C entrance. There is also a mini-computer, PC104 (hcpc10401.jlab.org), at the power supply station and the motor encoder can communicate with the PC104 by RS232C communication. On the PC104, EPICS is running. All information are uploaded on EPICS periodically, and can read them from any cdaq machines. You can see the ladder status on a GUI which runs on cdaq PCs.

2   Operation

You can boot the control GUI by following procedure;

- Login to any cdaq machines (cdaql1 - cdaql6) by cvxwrks account. Password is same as cdaq's one, and you might find if you look the white board at the counting room.

- "> cd /home/cvxwrks/MEDM/HKS"

- "> ./sst-control.tcl"

, then pop a GUI window up as shown in Fig.1. HKS and HES Sieve Slit control menus are also listed on the window, but never control except for authorized users.
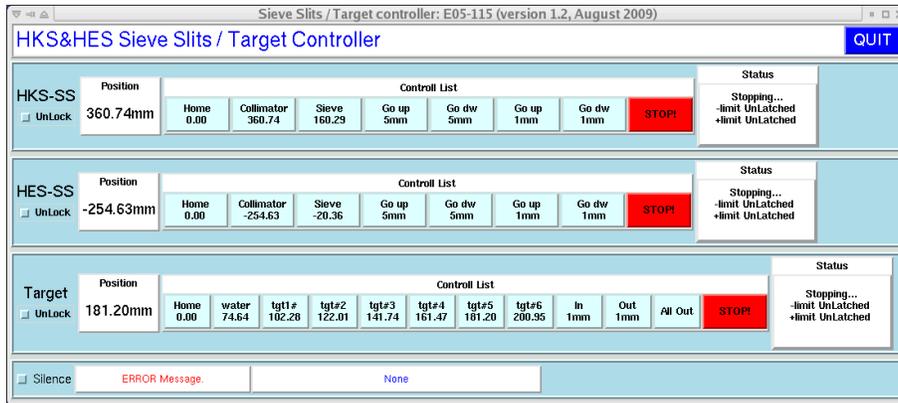

Figure 1: GUI window. Solid target #5 is on the beamline.

There are three categories on the GUI menu; "Position", "Control List" and "Status". The "Position" indicates present target ladder position is how far from the HOME position. So if ladder is at HOME position, it should be 0.00mm. Since this value is lost after power cycling of controller, you have to move it at HOME once, then insert it on the beamline.

For the control of the target ladder, twelve buttons are listed on the control category; Home, water cell and six solid targets #1 - #6, ±1mm movement for fine tuning, All out for target folder replacement and emergency STOP. The ladder inserts from left side of beamline. FIg.2 shows schematic view around target region on a target ladder. From right side, water cell and #1 - #6 solid targets are located. + direction is the ladder in and − out. All buttons except for STOP is locked normally to avoid unexpected movement. So you have to click UnLock button just bellow the "Target" label

before you move the target. Each number on a button shows the position when you push the button. Soon after click the button, the target ladder start moving. "Moving..." message appears instead of "Stopping..." on the status list, and it is back to "Stopping..." after finishing the movement. If the target ladder hits positive (negative) End-of-Travel switch. "+(-) limit Switch ON! " message appears. In that case you have to click STOP! button to reset status, then click other button to move it.
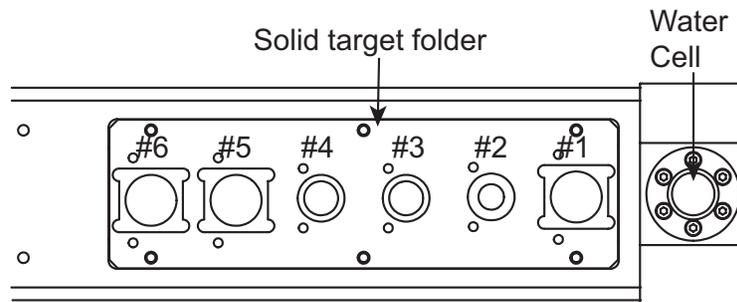

Figure 2: Schematic view of a water cell and a target folder.

3 Miscellaneous

- If Accelerator group requests empty target. Move the target ladder to HOME position.

- If the ladder hits End-of-Travel switch, it sticks there. Push STOP! button, then you can control it.

- Beep on if serious problem such as an encoder amplification fault occur. Please contact expert.