Subject: TCS work at LLO
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Hey guys,

Here's a more full version of the ALOG I'm writing up:

Joe B. Carl A. David F. Thomas V.

Goals: Implement the most up-to-date wiring/software of the PSL rotation stage. Integrate the TCS CO2 rotation stages into the Beckhoff and get all three running well on the final system setup.

Monday: We started the day off by getting the test set up for the rotation stage working. I first matched the dynamical (COE) parameters that are used at LHO on the PSL to the test set up. Most notably, I reversed the signal of the encoder from FALSE to TRUE, which reverses the way that the Beckhoff reads direction. I tested this by manually rotating the stage with a worm screw and saw that the encoder direction was correct with this setting. I also changed coil resistance to 63.53 Ohms, this will match LHO's. These changes have made the stage work. In order to integrate TCS into the corner station Beckhoff machine (L1ECATC1), we had to modify PLC3.PRO to incorporate new memory for the rotation stage channels. I also added new laser power structures to the CO2 laser library so that we get the correct channel names: ($IFO):TCS-C_CO2_($ARM)_LASERPOWER_....

Tuesday: We integrated the new code into the corner station computer and compiled. Also mirrored the existing MEDMs from the PSL for the TCS stages. Because TCS was not quite ready to accept the new hook up, we tested the PSL first. Things were working well until a few diodes blew out on the D1300131 EtherCAT side about 1.5 hours after we completed the install causing the PSL IO Chassis to trip because they shared the same power strip. [[https://alog.ligo-la.caltech.edu/aLOG/index.php?callRep=10864|ALOG-10864]]

Wednesday: After making the fix to the diodes, we found the same power issue. This time we narrow it down to the interface box on the motor side and swapped those out. Now hopefully we have a fully working, robust system. Though most of this day I worked with Aidan and Chris on the TCS tables, Joe and Carl did the fixes to the diodes.

Thursday: We hooked up TCSX and TCSY to the corner station Beckhoff and integrated the electronics into the software. It works for now, but we'll probably want to keep a close eye on that set up since they could have the same problems as the PSL had on Tuesday/Wednesday.

All in all, at the moment, we have 3 working rotation stages running on the PSL/IO/TCS chassis. Yay.

Let me know if you have questions

Thanks

Thomas