LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

-LIGO-

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Start Guide	**LIGO- T1200377-v1**	30 July 2012
aLIGO HEPI Pump Servo Startup Procedure		
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Distribution of this draft: NSF reviewers, LIGO scientists

This is an internal working note of the LIGO Laboratory

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How to start the Pump Servo:
1) Make sure all of the cables are plugged in for the monitor, keyboard, mouse and power.
2) Connect the included DC power wires to a dual power supply that is set for +/- 15V. The white wire is +15V, the green wire is -15V, and the black wire is ground. The extra black wire is there to tie the negative of the positive supply to the positive of the negative supply.
3) Turn on the power supply, and verify that the current being drawn is ~-20mA and ~+25mA.
4) Plug in the Single Board Computer's AC power cord to a wall socket.
5) The computer should start on its own.
6) To get everything running, follow the procedure below. Things written in blue should be typed by you. Hit Enter (or carriage return) after each command.

Localhost login: controls
Password: epics123
[controls@localhost~]$ startx

Open a terminal by clicking on the middle icon at the top of the screen.

[controls@localhost~]$ cd /target
[controls@localhost target]$ sudo bash
[root@localhost target]$ ./run
(This starts the program. At this point, you should hear the relays click in the box.)
[root@localhost target]$ exit
[controls@localhost~]$ medm &

In the box that comes up, click "Execute"
In the other box, click "Open"
Double click on "/target/medm"
Double click on "a.adl"
This should start the medm screen for the servo.
The database for the servo is a.db and is in the /target directory. I think that, from here, the development of the servo can start. Values for the Proportional, Integral, and Derivative terms can be changed by entering new values in the medm windows. The servo can be turned on and off from there as well. The servo runs pretty slowly, due to all of the pressure readings. If you comment out all of the pressures except the two used for the differential pressure (1&2), the code runs a lot faster. That would allow the use of a "smoo" command in the database. There may also be other ways to speed it up, but I haven't had time to investigate further.

Some useful links:

The SBC manufacturer, with lots of documentation:

http://www.diamondsystems.com/products/athenaii#sss

The epics page (lots of documentation on writing epics databases):

http://www.aps.anl.gov/epics/EpicsDocumentation/AppDevManuals/RecordRef/Recordref-1.html

The Pump Servo schematic:

https://dcc.ligo.org/DocDB/0004/D0901559/001/aLIGOPumpServoSchem.pdf