**hyperdaq.devicegui**

devicegui.py

A module for user interfaces of hardware devices controlled through hyperDAQ

Last Updated: February 2020

Trevor Arp

Gabor Lab

University of California, Riverside

All Rights Reserved

***class*hyperdaq.devicegui.MIRA\_900\_OPO(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.generic\_device](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.generic_device" \o "hyperdaq.devicegui.generic_device)**

Controller for the Coherent MIRA 900 OPO Laser

**init\_interface()**

Initializes all the tk elements, override for functionality

**log\_status()**

Logs all relevant parameters for a scan

**set\_wavelength(*v*)**

**set\_wavelength\_callback()**

**update()**

Updates all visible parameters

***class*hyperdaq.devicegui.MIRA\_900\_OPO\_Stable(*master*, *gui*, *controller*, *data\_out*)**

Bases: [**hyperdaq.devicegui.MIRA\_900\_OPO**](file:///C:\Users\evers\OneDrive\Desktop\html-hyperDAQ\html-hyperDAQ\hyperdaq.devicegui.html#hyperdaq.devicegui.MIRA_900_OPO)

Controller for the OPO Laser, attempts to correct for variations in the OPO output based on a calibration.

Calibration should be performed each time the laser is adjusted, or has drifted significantly.

**init\_interface()**

Initializes all the tk elements, override for functionality

**load\_calibration()**

Loads the calibration data if applicable, override to add functionality

**set\_reference()**

**set\_wavelength(*v*)**

***class*hyperdaq.devicegui.calibrate\_power\_angle(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.thor\_rotation\_stage](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.thor_rotation_stage" \o "hyperdaq.devicegui.thor_rotation_stage)**

A rotation stage specialized to calibrate the rotation stages

**init\_interface(*anglename='Angle'*, *angletitle='Rotation Stage Angle: '*, *anglelog='Rotation Stage Position'*)**

Initializes all the tk elements, override for functionality

**update()**

Updates all visible parameters

***class*hyperdaq.devicegui.dual\_stage\_power\_control(*master*, *gui*, *controller*, *data\_out*, *second\_stage='rot\_stage\_2'*)**

Bases: **[hyperdaq.devicegui.generic\_device](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.generic_device" \o "hyperdaq.devicegui.generic_device)**

An interface for two rotation stages, with keys ‘rot\_stage’ and ‘rot\_stage\_2’, for dual control in pump probe setups

**calibrate\_power(*data*)**

**calibrate\_responsivity(*wav*)**

**init\_interface()**

Initializes all the tk elements, override for functionality

**load\_calibration()**

Loads the calibration data if applicable, override to add functionality

**log\_status()**

Logs all relevant parameters for a scan

**set\_angle\_callback()**

**set\_power(*p*)**

**set\_power\_callback()**

**set\_ratio\_callback()**

**update()**

Updates all visible parameters

***class*hyperdaq.devicegui.generic\_device(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **object**

Generic Interface for a hardware device. Inherit and override to customize interface for a device. The update() and log\_status() functions should be implemented to update the device status and write that status to a log file, respectively.

**Parameters**

* **master** – The frame in which to pack the interface
* **gui** – The reference to the broader user interface, used for writing out information
* **controller** – The device controller
* **calibration** (*str, optional*) – the file is the calibration of the device if needed, need tp implement load\_calibraiton function to use

**init\_interface()**

Initializes all the tk elements, override for functionality

**load\_calibration()**

Loads the calibration data if applicable, override to add functionality

**log\_status()**

Logs all relevant parameters for a scan

**update()**

Updates all visible parameters

***class*hyperdaq.devicegui.inplane\_angle\_stage(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.thor\_rotation\_stage](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.thor_rotation_stage" \o "hyperdaq.devicegui.thor_rotation_stage)**

**init\_interface()**

Initializes all the tk elements, override for functionality

***class*hyperdaq.devicegui.lakeshore\_336\_temperature(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.generic\_device](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.generic_device" \o "hyperdaq.devicegui.generic_device)**

Controller for CPS temperature sensors and Lakeshore 336 hardware

**heateronoff\_callback()**

**init\_interface()**

all the tk elements, override for functionality

**log\_status()**

Logs all relevant parameters for a scan

**setpoint\_callback()**

**update()**

Updates all visible parameters

***class*hyperdaq.devicegui.lakeshore\_625\_magnet(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.generic\_device](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.generic_device" \o "hyperdaq.devicegui.generic_device)**

Controller for Superconducting Magnet through Lakeshore 625 hardware

**init\_interface()**

Initializes all the tk elements, override for functionality

**log\_status()**

Logs all relevant parameters for a scan

**update()**

Updates all visible parameters

***class*hyperdaq.devicegui.oop\_angle\_stage(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.thor\_rotation\_stage](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.thor_rotation_stage" \o "hyperdaq.devicegui.thor_rotation_stage)**

Out Of Plane (OOP) angle controller

**init\_interface()**

Initializes all the tk elements, override for functionality

***class*hyperdaq.devicegui.optic\_angle\_stage(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.thor\_rotation\_stage](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.thor_rotation_stage" \o "hyperdaq.devicegui.thor_rotation_stage)**

**init\_interface()**

Initializes all the tk elements, override for functionality

***class*hyperdaq.devicegui.polarization\_angle(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.thor\_rotation\_stage](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.thor_rotation_stage" \o "hyperdaq.devicegui.thor_rotation_stage)**

A rotation stage specialized for polarization

**init\_interface(*anglename='Angle'*, *angletitle='Rotation Stage Angle: '*, *anglelog='Rotation Stage Position'*)**

Initializes all the tk elements, override for functionality

**log\_status()**

Logs all relevant parameters for a scan

***class*hyperdaq.devicegui.spectrapro\_monochrometer(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.generic\_device](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.generic_device" \o "hyperdaq.devicegui.generic_device)**

Controller for the OPO Laser

**init\_interface()**

Initializes all the tk elements, override for functionality

**log\_status()**

Logs all relevant parameters for a scan

**set\_wavelength(*v*)**

**set\_wavelength\_callback()**

**update()**

Updates all visible parameters

***class*hyperdaq.devicegui.thor\_delay\_stage(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.generic\_device](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.generic_device" \o "hyperdaq.devicegui.generic_device)**

Controller for a Thor Labs delay stage

**init\_interface()**

Initializes all the tk elements, override for functionality

**log\_status()**

Logs all relevant parameters for a scan

**scan\_delay(*v1*, *v2*)**

**set\_delay(*v*)**

**setdelaypos\_callback()**

**setdelaytime\_callback()**

**update()**

Updates all visible parameters

***class*hyperdaq.devicegui.thor\_rotation\_stage(*master*, *gui*, *controller*, *data\_out*, *calibration\_file=None*)**

Bases: **[hyperdaq.devicegui.generic\_device](file:///C:\\Users\\evers\\OneDrive\\Desktop\\html-hyperDAQ\\html-hyperDAQ\\hyperdaq.devicegui.html" \l "hyperdaq.devicegui.generic_device" \o "hyperdaq.devicegui.generic_device)**

Simple Controller for Thor Labs rotation stage

**init\_interface(*anglename='Angle'*, *angletitle='Rotation Stage Angle: '*, *anglelog='Rotation Stage Position'*)**

Initializes all the tk elements, override for functionality

**log\_status()**

Logs all relevant parameters for a scan

**set\_angle(*v*)**

**set\_angle\_callback()**

**update()**

Updates all visible parameters