Remote Controlling Screen with Diagnostics and Control Points

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Abstract

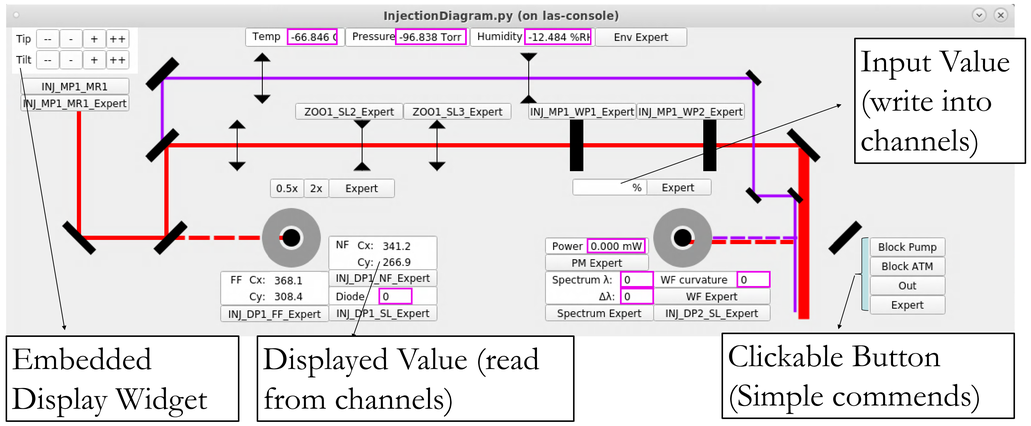
The project is about developing screens and backend python code to accurately detect beam sources and destinations, including potential interruptions of the beam, and display this informatively on a screen using the SLAC-developed PyDM framework.

Motivation

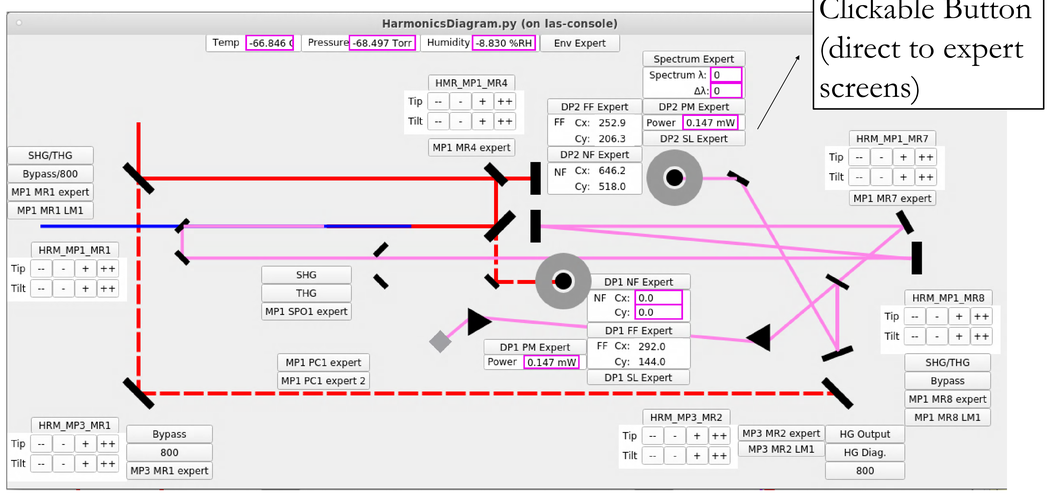
TILE (Tabletop Integrated Laser Elements) are laser lens-set units, which performs different functions, including
beam acceptance (Injection), harmonic generation (Harmonics), and
pulse compression (Compressor).
Currently, as people build TILEs, they should have to control different lens equipment in the TILEs.
To help laser scientists accessing and controlling the diagnostics and control points, e,g. mirrors, cameras, etc., we not only developed the control screen to let laser scientists to control them remotely in the SLAC las-console subnetwork differently, but developed a visually assembled and convenient screens, that can operate simple commends and assess to the expert screen to apply more advanced commend and pinpoint controls.

Screen Diagrams

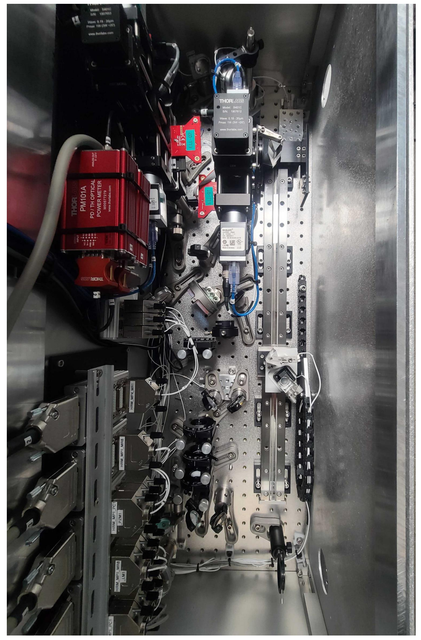
Injection Diagram



Harmonic Diagram



Injection (Input) TILE:
characterizes, collimates, resizes, and attenuates the beam from the laser transport system.
Harmonics TILE:
generates second and third harmonics
of the laser beam with dispersion compensation



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